



Australian Government



National
Water Grid
Authority

The National Water Grid: Investing in Australia's water future



Supporting growth,
resilience and
prosperity through the
National Water Grid



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© Commonwealth of Australia 2020
ISBN 978-1-925843-43-9
October 2020 / INFRASTRUCTURE 4151

The Australian Government acknowledges the Traditional Custodians of Australia and their continuing connection to the land and waters. We value the contribution and rich cultural heritage of Aboriginal and Torres Strait Islander peoples. We are committed to empowering and supporting Aboriginal and Torres Strait Islander peoples through our work and our actions.

Throughout the remainder of this document, the term 'Indigenous' has been used to collectively refer to Aboriginal and Torres Strait Islander peoples. However, we acknowledge the differences in culture, history and language, not just between Aboriginal and Torres Strait Islander peoples, but also between communities.

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Director – Creative Services
Communication Branch
Department of Infrastructure, Transport, Regional Development and Communications
GPO Box 594
Canberra ACT 2601
Australia

Email: creative.services@infrastructure.gov.au
Website: www.infrastructure.gov.au

Foreword

Water is the lifeblood of our nation. It is critical to the prosperity and resilience of our regions. It underpins our thriving agricultural sector, which supports over 220,000 jobs and injects billions into our national economy each year.



As a proud regional Australian from an irrigation area I know just how important water is for our farmers and their communities.

Australia's agricultural sector has grown strongly on the back of international demand for our world-renowned quality exports. However, hotter and drier conditions have cost some parts of the sector an estimated \$1.1 billion in annual production over the past 20 years¹.

We know these impacts are felt well beyond the farm gates. Many of our regions and farming communities are facing tougher times due to the major challenges of prolonged drought, devastating bushfires, and floods – and most recently, the global COVID-19 pandemic.

Regions are the backbone of our economy. They already contribute about one third of our economic output.

We must continue to stand with our farmers and our regions to ensure they not only get the support they need to grow, but to also thrive into the future as Australia responds to and recovers from these challenges.

That is why the Australian Government is getting on with the job of delivering critical water infrastructure projects across the country.

By investing in water infrastructure, we are doing more than just investing in our most valuable resource. We are backing our regions, our farmers and their communities now and into the future. We are supporting our primary industries, creating resilient regional jobs and investing in robust regional economies.

Our work on a National Water Grid includes our existing \$1.5 billion investment in the National Water Infrastructure Development Fund. We are funding over 20 projects to supply billions of litres of water for productive use each year. But we know more needs to be done.

The Australian Government recognises it needs to be a long-term partner with state and territory governments. That is why we are shifting the nation's approach to water security by committing to a 10 year rolling water infrastructure investment program to help deliver the National Water Grid. To support this we are investing a further \$2 billion under the National Water Infrastructure Development Fund, more than doubling this fund to a total of \$3.5 billion. This will contribute to regional economic recovery and jobs in the near term while building resilience to drought over the long term.

The National Water Grid will be a series of region-specific water storage and distribution networks that will help grow our agricultural output, increase water security and build resilience. It will unlock new areas and opportunities for agriculture, supporting our plans to grow this sector towards a \$100 billion industry.

The Grid will be shaped by a comprehensive, integrated investment framework grounded by a robust evidence-base and world class science. Strong and effective partnerships with state and territory governments will underpin the focus on planning to deliver the right infrastructure investments in the right places. We will take the politics out of decisions that will significantly impact how we thrive into the future.

There can be no one-size-fits-all approach to how we achieve this – our solutions must be tailored according to each region’s natural environment, geography, climate and existing water infrastructure and sources. We must explore all options, existing and future, from dams to desalination, to pipelines, recharge and reuse to best meet demand.

To deliver on this, the Government established the National Water Grid Authority in late 2019. The Authority is working closely with the states and territories to plan, identify and build the next generation of water infrastructure.

Together, we will deliver on our national water infrastructure agenda to support a prosperous and resilient regional Australia – for the people who live there today, and those who will live and work in our regions in the future.

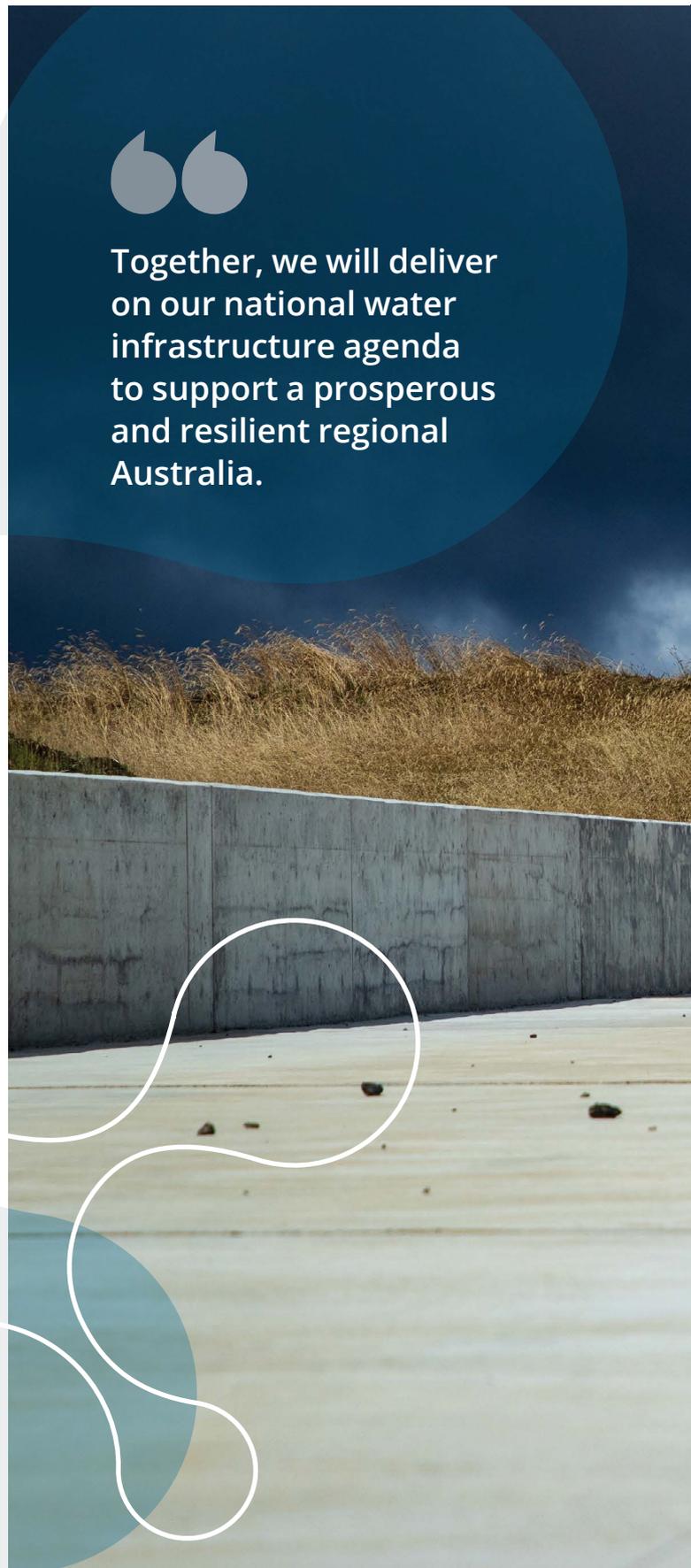


The Honourable Michael McCormack MP

*Deputy Prime Minister
Minister for Infrastructure, Transport
and Regional Development*



Together, we will deliver on our national water infrastructure agenda to support a prosperous and resilient regional Australia.



Scottsdale Irrigation Scheme, Tasmania





Opportunities

Supporting regional prosperity, agricultural growth and a thriving economy

Our regions, our national identity

Australia's prolonged economic growth has provided security and opportunities to people across the country. Our regions continue to play a crucial role in our unfolding national growth story, as we weather the challenges of bushfires and drought, and recover from the economic impacts of the COVID-19 pandemic.

Regional Australia earns two thirds of our annual export income and produces 31 per cent of national GDP – \$537 billion in 2016–17², making a strong contribution to a range of sectors including agriculture, tourism, retail, services and manufacturing.

Recent Australian Bureau of Statistics (ABS) data showed that in 2018-19, agriculture contributed around \$60 billion³ to our economy and supported over 89,000 businesses⁴. It employs 228,000 people, with 82 per cent of these people living in our regions⁵.

As well as being crucial to our continued economic growth, Australia's regions are home to nearly a third of our population and are integral to our national identity.

Despite the challenges of being on the driest inhabited continent on earth, our regions and their agricultural production remain strong. But as hotter and drier conditions continue more needs to be done to ensure continued regional and economic growth.



Building confidence and creating the conditions for longer-term planning and investment by producers in their industries is an important part of this continued growth journey. More reliable water supplies and increased security will be critical to our agricultural growth, resilience to drought and regional prosperity.

Improved water security and reliability is also linked to Indigenous water interests, and has the potential to support Indigenous economic development opportunities.

Reliable water to grow Australian agriculture

From the grasslands of South Australia’s cattle regions to the sugarcane fields of Queensland, our diverse nation supports a variety of growing regions. This diversity supports a wide range of products including cattle, cotton, fruit, nuts, vegetables and wool.

Around two thirds, or 70 per cent, of Australia’s agricultural products are exported and demand is growing⁶.

This growth has been supported by rising international recognition of the high-quality of Australian farmers’ products, and the ever-increasing demand from emerging Asian markets.

Australia has a significant opportunity to capitalise on its national brand and rising global demand will help grow the sector towards a \$100 billion industry.

Agriculture accounts for more than half of Australia’s annual demand for water. Increased access to secure and reliable water supplies will help grow the sector to a \$100 billion industry.



Australia’s \$60 billion agricultural sector has the potential to grow towards a \$100 billion industry.

Much of Australia’s agricultural production currently occurs in our southern regions. Investing in the right infrastructure in the right place to increase water supply and security will help our farmers in these established agricultural regions to increase production and expand their businesses.

Our north receives more than 60 per cent of our nation’s rainfall each year⁷, but faces challenges including a highly seasonal rainfall pattern.

We have an opportunity to capture and store more of this rainfall to unlock new productive areas for agriculture in our north.

Overall, we are in a strong position to continue and accelerate our agricultural growth over the coming decades.

Australia’s top agricultural commodities 2017–18



Source: Australian Bureau of Statistics

What water unlocks for Australians

Our agricultural strength

Around **\$60 billion**
agricultural production

\$49 billion
value of agricultural exports

\$17.7 billion
value of irrigated agricultural production

Our people

Around **89,000**
businesses

228,000
people employed in agriculture

82%
of our agricultural workforce lives in our regions

Right now

Over **\$1.5 billion**
committed to water infrastructure projects

Over **50**
feasibility studies funded to date

Over **20 projects**
already committed to or underway

Opportunities

\$100 billion
in agricultural production

\$2 billion
in additional grant funding to invest in our future water security

2 million
gigalitres of rain falls in northern Australia each year

Challenges

Meeting our water needs and building resilience in the face of hotter, drier conditions

A challenging and changing climate

Drought conditions continue to affect our nation. Overall, we are facing drier, hotter conditions alongside an increase in the frequency of extreme weather events like drought and floods.

In much of southern Australia, recent decades have seen a trend towards lower average winter season rainfall. The drying in recent decades across southern Australia is the most sustained large-scale change in rainfall since national records began in 1900⁸. In some parts of Queensland heavy rainfall events with less rainfall in between are becoming more common. For these communities, efficiently storing greater volumes of water for longer periods is an increasing priority.

By contrast, rainfall in many parts of northern Australia has increased in the past 20 years, with our north currently receiving over two million giganlitres of rain a year⁹. But much of this rain falls during limited wet-season months, making the effective capture and storage of this water for productive agricultural use year-round challenging.

While our farmers and communities have always faced the realities of a dry, diverse and variable continent, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Bureau of Meteorology have predicted the duration and severity of recent environmental conditions will continue.



Did you know?

Water storage is usually measured in megalitres (ML) or giganlitres (GL).

Megalitres (ML)

- One megalitre is equivalent to one million litres.
- One megalitre of water weighs approximately 1,000 tonnes.
- It would fit in a box 10 metres wide, 10 metres long and 10 metres high.
- An Olympic-sized swimming pool holds 2.5 megalitres.

Giganlitres (GL)

- One giganlitre is equivalent to 1,000 megalitres, or one billion litres.
- One giganlitre of water weighs about one million tonnes.
- Sydney Harbour holds more than 500 giganlitres.





Helping our farming communities remain resilient to our challenging and changing climate will be critical for continuing our national growth story.

The reality of drier conditions and climate extremes

Drier conditions and weather extremes have a significant impact on our regional communities. Farmers, farming businesses and their families all acutely face the reality of production setbacks – which in turn, impact the broader community and regional economies.

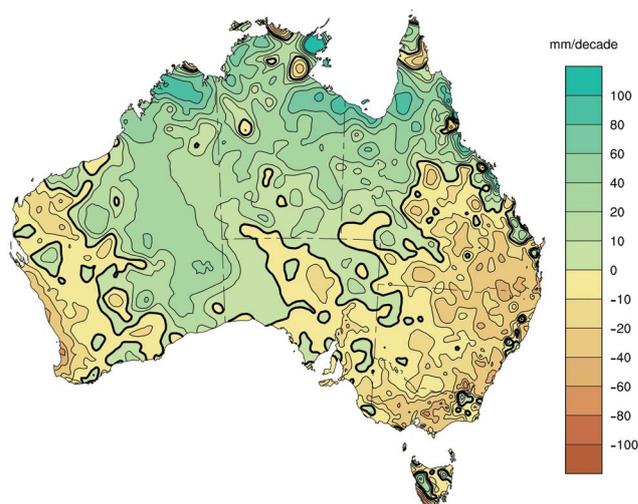
In the last two decades, hotter and drier conditions have seen some parts of Australia’s agricultural sector lose over \$1.1 billion in production annually. In 2019-20 the value of Australia’s agricultural exports is forecast to fall by 3 per cent to \$47 billion due to the impact of drought conditions¹⁰.

Despite the realities of drier conditions and climate extremes, the value of Australia’s agricultural production has steadily increased since 2000, testament to the strength and resilience of Australia’s farmers and agriculture regions.

While historically Australia has a strong record of water management and investment, climate change and an expanding agriculture sector are putting pressure on water resources. We need a new national approach to water infrastructure planning and investment.

Ongoing investment in our nation’s water infrastructure is a key enabler in enhancing and securing the productivity of our existing agricultural areas, opening up new regions for production, and further strengthening the resilience of our regional communities as our climate changes.

Trend in rainfall: Annual 1980-2019



Source: Australian Bureau of Meteorology

Agricultural production: Value in \$billions



Source: Australian Bureau of Statistics

Northern Australia

Unlocking opportunities to develop the north

Northern Australia stretches from Queensland in the east to the Northern Territory and Western Australia, and encompasses 40 per cent of Australia's land mass above the Tropic of Capricorn. The north is home to more than one million people. It features a diverse landscape and an abundance of natural resources. Its thriving agricultural, mineral and energy exports make a substantial contribution to Australia's prosperity.

It also accounts for over half of Australia's sea exports¹¹, national beef herd and the majority of national sugarcane production.

An important contributor to the agricultural sector, produce from northern Australia such as sugarcane and cattle contribute to Australia's \$60 billion total agricultural production. Products from the north include cattle, sugar, mangoes, bananas, melons, pumpkins, beans and cotton.

The availability of water from dams and groundwater dictates the location of the north's agricultural regions. While northern Australia receives more than two million gigalitres of rain annually, mostly in summer, retaining this abundant rainfall for productive purposes is challenging.

Ensuring the right infrastructure is built in the right place will improve water access and reliability to support new and expanded agriculture. To be successful it will also require the supporting infrastructure, markets and supply chains.

Planning and realising opportunities to grow primary and agricultural production across northern Australia requires a concerted effort from a range of partners and stakeholders.

Indigenous land interests cover about 78 per cent of northern Australia,¹² and associated Indigenous water interests are an important consideration for water infrastructure opportunities.

The Australian Government acknowledges Indigenous Australians as the Traditional Custodians of Australia, and their continuing connection to the land and the waters.

The Government is committed to working with all state and territory governments, stakeholders and Indigenous Australians to plan and realise future opportunities in northern Australia.

Northern Australia



What additional water infrastructure could deliver for the north

Increase Australia's total irrigated area by about **20%**



Around **600,000** hectares suitable for irrigated agriculture



Source: CSIRO

A total of \$388 million has already been committed to construct four projects across the north. This includes \$176.1 million for the Rookwood Weir, west of Rockhampton, which will help support central Queensland's agriculture industry.

In addition, more than \$100 million has been invested in over 20 feasibility studies and assessments in Northern Australia, to inform the future development of sustainable water infrastructure.

This includes the Northern Australia Water Resource Assessment, which explored opportunities for water and agricultural development in Western Australia's Fitzroy River Basin, Queensland's Mitchell River Basin and Northern Territory's Darwin region.

The Assessment found the Darwin, Mitchell and Fitzroy catchment areas could support around 600,000 hectares of irrigated agriculture, using a combination of groundwater resources, large dams and farm-scale storages, which would increase Australia's total irrigated area by about 20 per cent.



Investing in the right water infrastructure in northern Australia will unlock opportunities to expand the agricultural sector, support our regional communities and strengthen our national economy.

Water infrastructure for a dry continent

Australia's regional and agricultural communities have a long history of overcoming, thriving in, and building resilience to the sometimes harsh realities of life on the driest inhabited continent.

A story of achievement and ambition

Effectively managing our water to sustainably meet the needs of our communities and primary industries has always been a priority.

This has seen a broad range of unique solutions built on good ideas employed across the country, to enable water to be utilised for productive use.

- The Goulburn Weir in Victoria, constructed between 1887 and 1891, was the first major water diversion structure built for irrigation in Australia.
- The Cataract Dam in New South Wales followed in 1902, and was the biggest engineering project in Australia to that date.
- In 1944, work began on the historic Snowy Mountains Scheme, an integrated water and hydro-electric power utility in New South Wales. Completed in 1974, the Scheme not only enabled the capture and release of water into the Murray-Darling Basin's Murray and Murrumbidgee rivers, but generated clean energy. Today, the Scheme supports the production of around \$3 billion in agricultural outputs each year¹³.
- In 1959, work started on the Ord Irrigation Scheme in Western Australia. It included a dam, diversion gate and distribution components to harness wet season rainfall to support agriculture year-round, including during dry seasons. Two \$2.5 million Australian Government-funded feasibility studies for Ord Stage 3 in the Northern Territory and Western Australia were completed in 2019.

- The longest running managed aquifer recharge operation, which recharges up to 45 gigalitres of water a year on the Burdekin Delta in Queensland¹⁴, was established in the mid-1960s. The Delta is a major irrigation area supporting approximately 38,000 hectares of irrigated sugarcane and other crops¹⁵. The managed aquifer recharge solution involves the intentional replenishment of water to underground aquifers for subsequent use or environmental benefit.



Did you know?

Moving water long distances can be costly, energy intensive and bring significant environmental, social and cultural impacts.

A range of studies has shown that using locally-available water is generally a more cost-effective solution than moving water long distances.

For example, in 2006 a study was undertaken to consider the potential to bring water from the Kimberley region in northern Australia all the way to Perth.

The study found it would at least double water bills and that local desalination could supply water for less than a quarter of the cost of any of the ways considered to divert water from the Kimberley.



From river diversion schemes and irrigation pipelines to dams and other infrastructure, we are a country that has always utilised a broad range of unique and region-specific solutions to retain, store and supply our water for productive use.

Big ideas for a sustainable water future

Securing a reliable supply of water for farmers has been a priority throughout Australia's history. We have faced many challenges, from our unique and diverse natural environment to our geographically-dispersed regions and varied agricultural production.

In considering the best ways to meet these challenges, many big ideas have captured our imagination, from the Bradfield Scheme in Queensland to the Snowy Hydro Scheme in New South Wales and the Ord River Irrigation Scheme in Western Australia.

The Ord and Snowy schemes in particular captured Australia's can-do spirit.

More ambitious schemes to move water over longer distances faced efficiency challenges, such as that proposed by Dr John Bradfield in 1938 to meet western Queensland's water needs.

The Bradfield Scheme includes proposals to move water from the coastal catchments of north Queensland – including the Tully, Herbert and Burdekin Rivers – across the Great Dividing Range to western Queensland, sending it through a catchment at Hells Gates and into the Thomson River, before moving it to Lake Eyre.

The Bradfield Scheme has been investigated and revised over time, and new ideas presented to try and feasibly support the original vision. There are a range of variations including moving water into southern Queensland and NSW.

With access to the best available science to investigate water scheme proposals, both new and historic, we have the opportunity to test the assumptions that underpin old ideas, and develop new ideas with strong evidence-bases, to deliver the water infrastructure of the future.

The Australian Government has committed over \$145 million towards more than 50 studies across the country, working in partnership with local, state and territory governments to support detailed investigations that will help get feasible water infrastructure projects off the drawing board.

In Queensland, this includes \$24 million for the detailed business case, geotechnical investigations and environmental and other approval processes for the Hells Gates Dam scheme and the Big Rocks Weir projects.



Did you know?

Detailed design and planning is required well before construction of a water infrastructure project commences.

- In 1941, the New South Wales Government began an inquiry into the potential of the Snowy Mountains rivers for power generation.
- In 1944, a scheme was proposed to generate power and irrigate land by using the area's water.
- This led to the formation of the Commonwealth and States Snowy River Committee to consider, among other things, water usage between the states.
- Construction of the Snowy Mountains Hydro-Electric Scheme began.
- The Scheme was completed in 1974 and cost \$820 million to build, close to the original estimate of £422 million – around \$6 billion today.



How reliable water has helped develop our country

Access to water and security of supply, have played a critical role in the growth of Australia. Water supports individual health and wellbeing, determines where we live and the availability of food, and underpins social and environmental health more widely. Water has significance for Indigenous Australians – the cultural and spiritual values of water are important for Indigenous culture and identity.

Water underpins Australia's national agriculture industry, which produces high-quality food and fibre for Australians and the world.

Our management of water nationally has helped make our agricultural sector the world leader it is today, contributing strongly to our economic development. This success is underpinned by our many farmers and businesses, agricultural communities, and all levels of government and private enterprise who have worked together to develop and make use of our water resources.

How we source and use water has evolved as we have grown and developed as a nation, and with our changing water needs. This has both inspired and required advancements in research and science in Australia, and has driven the development of climate-resilient solutions, such as

recycling, and desalination, which now form part of our response to increasing water security in the face of a changing climate.

Around 57 per cent of Australia's land is used for agriculture, and irrigated production accounts for only 0.27 per cent of our land use¹⁶ – and yet, the gross value of our national irrigated agricultural production in 2017–18 was \$17.7 billion. Production has shown strong growth in recent years, up 14 per cent since 2016–17¹⁷.

The Murray-Darling Basin is a nationally significant example of how water has helped us develop and unlock our agricultural regions.

Now contributing \$22 billion in food and fibre every year, and supporting 9,200 irrigated agricultural businesses¹⁸, the Murray-Darling Basin region is the largest food bowl in Australia.

In 2017–18, of Australia's 2.3 million hectares of irrigated agricultural land, 1.5 million – or 65 per cent – was in the Murray-Darling Basin. This figure has grown substantially over time since the 1890s, when irrigation development along the Murray commenced. Just ten years earlier in 2007–08 the Basin supported just under one million hectares of irrigated agricultural land, representing 52 per cent of the national total that year.



An evolving approach to managing our water

Although not without its challenges, the contribution that the Murray-Darling Basin makes to Australia's agricultural output is the result of a long history of evolving water management between the five states and territories it spans.

The River Murray Waters Agreement in 1914, which took 13 years to negotiate, was the first of successive water sharing arrangements between the Commonwealth and the Basin states – New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory.

In 1985 the Murray-Darling Basin Agreement was adopted to replace the earlier River Murray Water Agreement of 1914. The purpose of the Basin Agreement is to promote and coordinate effective planning and management for the equitable, efficient and sustainable use of the water and other natural resources of the Murray-Darling Basin.

The Water Act was established in 2007 and provides the legislative framework for ensuring that Australia's largest water resource – the Murray-Darling Basin – is managed in the national interest.

This increased collaboration around the Murray-Darling is reflective of the Commonwealth's broader national role in working with the states, territories and communities to enhance the way we manage our water resources. The 2004 National Water Initiative, for example, represents a shared, national agreement between state and territory governments, and the Commonwealth, to increase the efficiency of Australia's water use.





Sound science to secure our future

Australia is no stranger to the development of unique solutions to managing water, and continuing this history of advancement is an essential part of securing supply for our future, and continuing to grow our regions and agriculture.

Using world best science, the Australian Government is working closely with state and territory governments, and our leading national science institutions, Geoscience Australia, CSIRO and the Bureau of Meteorology, to plan and invest in the next generation of water infrastructure for Australia.

Evidence will inform the right water infrastructure choices in the right places. It will help deliver greater water security to support growth in our agricultural sector, build drought resilience and underpin a strong regional Australia. It will create jobs, strengthen our economy, boost productivity and help grow our agricultural production.

This science-based approach will include comprehensive investigations of the state of Australia's current water resources, to identify where and how they can be sustainably developed to increase the security and reliability of water supply for agricultural use, and to support prosperous regions.

Did you know?

The Northern Adelaide Irrigation Scheme will deliver new facilities to treat, store, and transport water right to farm gates, regardless of climatic variations. When complete, this project is expected to increase the region's current production of recycled irrigation water by 60 per cent.

All opportunities will be explored. For example, desalination plants that may enhance agricultural productivity by supplying treated brackish groundwater as a cost-effective alternative water source for irrigation; or water-recycling infrastructure and its potential contribution to a climate-resilient supply of water for agricultural use.

From water recycling, desalination and aquifer recharging, to more traditional storage and supply solutions such as dams and weirs, the unique characteristics of each region and its water resources – and world best science – will help inform the right water infrastructure choices.

The vision for the National Water Grid

There can be no one-size-fits-all approach to Australia's regional water infrastructure. Regional infrastructure solutions will be as unique as the regions themselves.

A water 'grid' is a combination of water storage and water distribution networks, with the objective of ensuring that sufficient water is available to meet demand.

The Australian Government is committed to the development of the National Water Grid that will:

- help grow our agricultural output
- increase the availability and security of water
- build resilience to a changing climate and help our regions prosper.

The grid will be a series of region-specific systems that secure predictable supplies of water now and into the future to help grow our agriculture and regional prosperity.

Key to the success of this will be unlocking new agricultural regions, especially in our north, and increasing water security for existing agricultural regions.

While there is no one-size-fits-all approach, an example of a water grid, its components and how it could fit together is shown opposite. Specific approaches will need to be tailored to each region's natural environment, geography, climate and existing water infrastructure assets, backed by science.

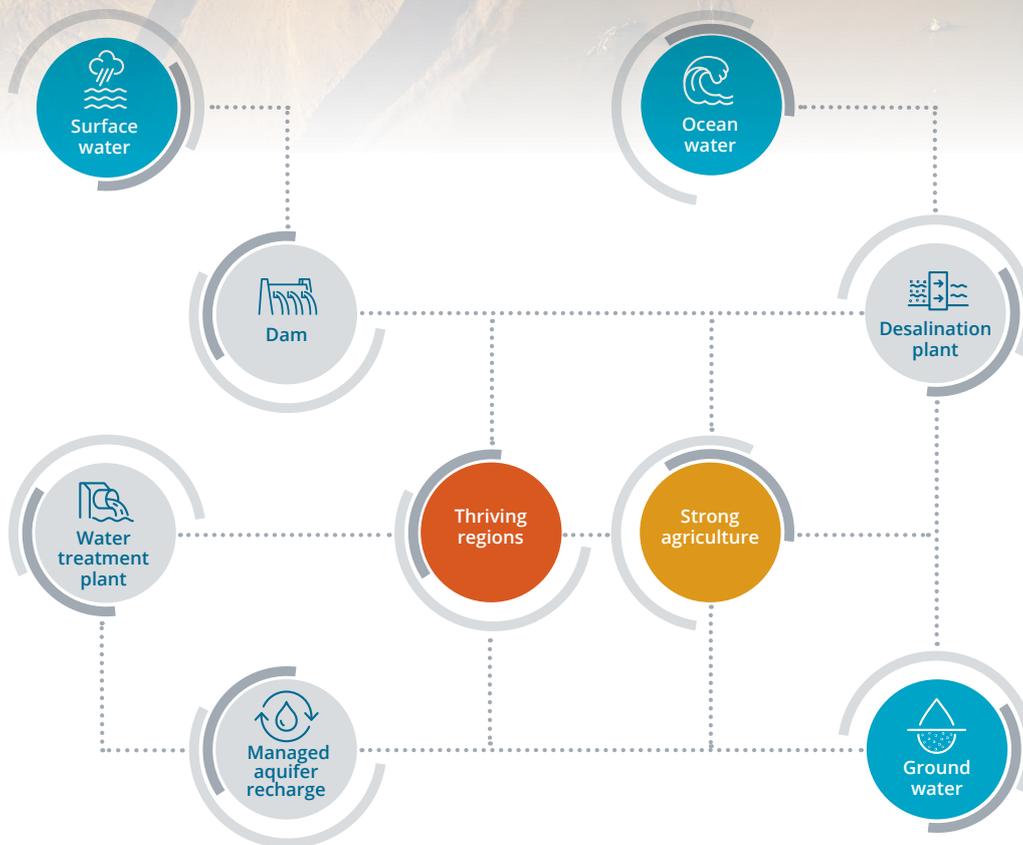
All infrastructure options and combinations need to be considered, including dams, reuse, desalination, groundwater, natural waterways, channels and pipelines. The potential for existing and new technological solutions also needs to be taken into account.

Project case studies, featured later in this document, illustrate different ways some of these elements can be utilised to deliver increased water security.





What can a water grid look like?



How are we delivering?



Priority projects

A National Water Infrastructure Investment Framework will support the identification of a pipeline of nationally important water infrastructure projects and link policy objectives to Australian Government investment decisions.

The framework sets out how the National Water Grid Authority will work with state and territory partners to advise the Australian Government on:

- identifying nationally important, non-urban water infrastructure priorities
- selecting water infrastructure projects for an investment schedule
- funding water infrastructure.

The framework will support the identification of projects that:

- provide opportunities to expand agriculture and primary industries
- build drought resilience
- support the growth of regional economies.

World best science

World best science will determine where and how Australia's water resources can be sustainably developed to increase the security and reliability of supply.

Working with partners and stakeholders, we will:

- strategically assess where water resources, including groundwater, can be developed, and where emerging opportunities or new technologies can be leveraged
- work with state and territory governments, industry and leading science institutions including the Bureau of Meteorology, CSIRO and Geoscience Australia to bring together a range of views on water infrastructure opportunities
- integrate current and planned science programs to inform the identification of water infrastructure opportunities, and inform infrastructure investment decisions
- share the results of science programs with stakeholders and the broader community.



We will develop and publish information about a pipeline of nationally important water infrastructure projects. This will ensure transparency around Australian Government water infrastructure investment, and give agriculture and other primary industries greater certainty about the future of Australia's water supply.

Funding

The Australian Government has established the National Water Infrastructure Development Fund as a program for priority water infrastructure projects. To date over \$1.5 billion has been committed to identify, co-fund and build the water infrastructure of the 21st century in partnership with state and territory governments.

We are building on this investment with an additional \$2 billion under the National Water Infrastructure Development Fund, more than doubling this fund, and committing to a 10 year water rolling infrastructure investment program to help deliver the National Water Grid. This takes our commitment under the fund to a total of \$3.5 billion.

Impact

Predictable supplies of water across the nation's regions will contribute to growth in the agricultural sector, increase the availability and security of water in our regions and build resilience in the face of a changing climate.

Importantly, it will give farmers and regional businesses greater confidence to plan and invest for the future.

A coordinated, national approach to water infrastructure planning and investment, with projects that are identified in partnership with state and territory governments, will deliver a National Water Grid that helps secure predictable water supplies across the country in the short, medium and long-term.



Working in partnership

Growing Australia's agricultural output, increasing water security, and building resilience to drought can only be achieved by working in partnership.

The Australian Government will work collaboratively with the states and territories to identify, plan and deliver Australia's next generation of water infrastructure. This recognises the important role states and territories play in the management of Australia's water resources, and in the National Water Grid.

The National Water Grid Authority plays a key role in coordinating a national approach to water infrastructure planning and development, and shaping national water infrastructure policy.

State and territory governments are responsible for developing project proposals for studies, business cases and infrastructure development. The proposals can be developed in consultation with other project partners, including local governments, Traditional Owners and the private sector.

Engaging with stakeholder groups such as regional community and agricultural organisations, local governments and the general public is an important aspect of how we work. Those living and working in our regions, in particular, experience the effects of our variable climate first hand and have valuable perspectives to offer on water infrastructure priorities.

The National Water Grid Authority is the lead Australian Government agency responsible for investing in Australia's next generation water infrastructure, but it is only one part of the Australian Government's broader water agenda.

The Authority is working closely with other Australian Government agencies to ensure water infrastructure investment decisions complement the Government's wider policy objectives. These include agriculture and economic and regional development.

Our counterparts include the Department of Agriculture, Water and the Environment, the Murray-Darling Basin Authority, the Office of Northern Australia and the North Queensland Water Infrastructure Authority.

In addition, the Authority's work is consistent with, and supports the aims of, the National Water Initiative and other existing water governance arrangements.

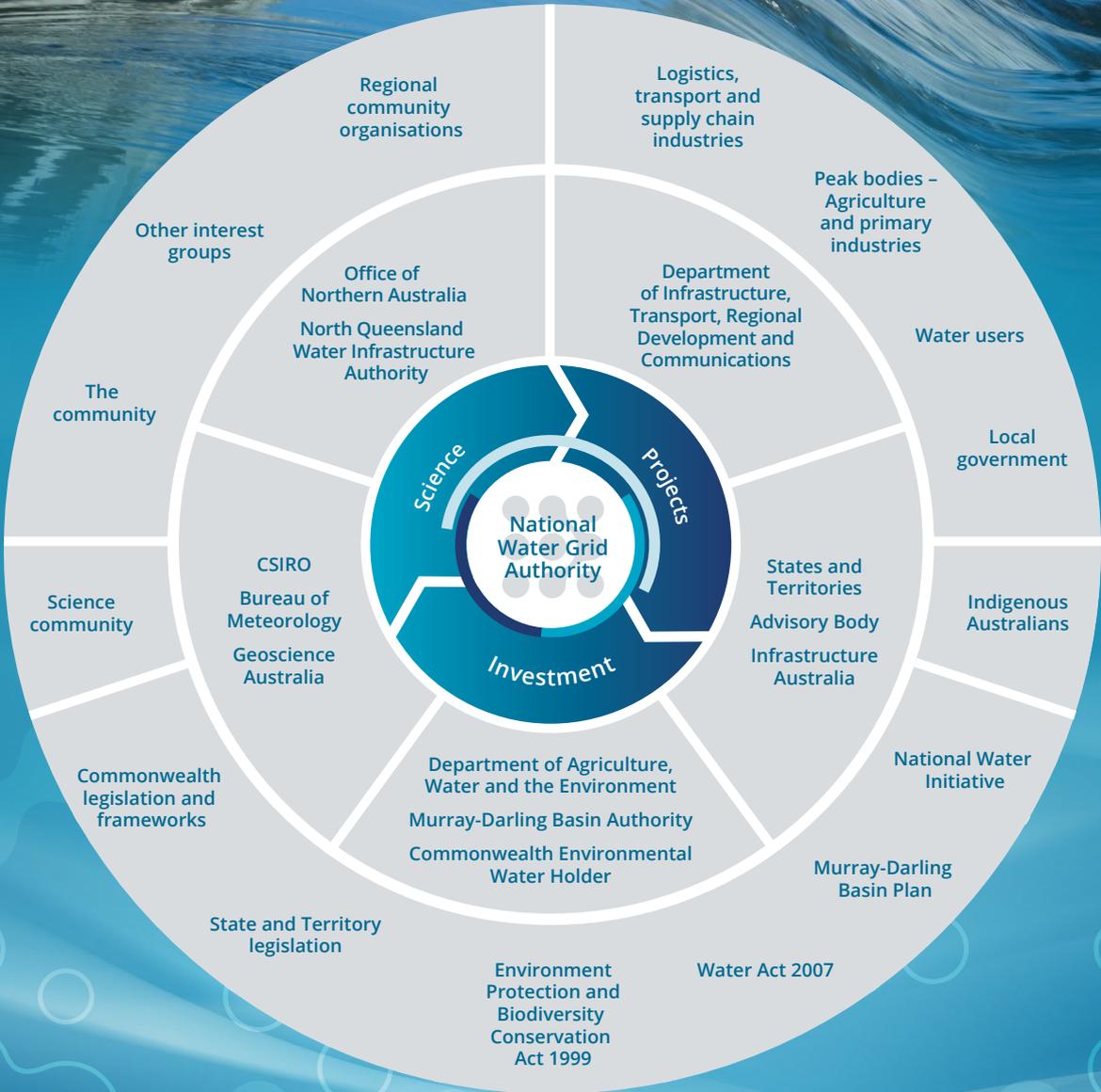
The National Water Grid Advisory Body

To help realise its water infrastructure objectives, the Australian Government has established the National Water Grid Advisory Body. This independent body of scientific, engineering, agricultural and economic experts will provide valuable and informed advice on water infrastructure issues and inform Government decisions and policy, helping to deliver the National Water Grid.

The body has two roles:

- to provide independent expert advice to the Australian Government on issues relating to water storage, capacity and delivery
- to strengthen and support public understanding and awareness of the investment choices the Government faces in delivering greater water security and resilience.

Operating context



Investing in our future: \$2 billion in additional funding for water infrastructure

The Australian Government is planning and investing in the next generation of Australia's water infrastructure to increase Australia's resilience to drought, support our primary industries and promote regional prosperity.



The Australian Government is building on its existing \$1.5 billion investment in water infrastructure projects with an additional \$2 billion in funding for new projects through the National Water Infrastructure Development Fund, more than doubling this fund to a total of \$3.5 billion.

We are also establishing the fund as a 10 year rolling program of priority water infrastructure projects, demonstrating our commitment to supporting and investing in Australia's regional economies over the long term.

It will help increase water security in areas where extensive irrigated agriculture already exists, while also helping unlock new agricultural regions, especially in Australia's north.



The National Water Grid will help grow Australia's agriculture sector, build resilience and help our regions prosper.

The Australian Government will continue to work closely with partners including state and territory governments, local government and industry to ensure this new funding is targeted to deliver the best outcomes for our nation, and informed by a strong scientific evidence-base.

What are we already delivering?



\$1.5 billion in funding

is already committed to help identify and build dams, weirs pipelines, water recycling plants and other projects that will deliver new and secure water for regional Australia.



Over 20 projects

that together will deliver additional, reliable water to enhance water security and underpin regional economic growth, including irrigated agriculture and other primary industries.

50+ FEASIBILITY STUDIES Over \$145 million

Across Australia, including five in the Northern Territory:

- Adelaide River Off-Stream Storage Feasibility Study
- Northern Australia Water Resource Assessments
- Northern Territory Irrigation Feasibility Study
- Ord Stage 3 Feasibility Study
- Roper River Catchment Water Resource Assessment

2 PROJECTS WA | Over \$178 million

- Myalup-Wellington Project
- Southern Forests Irrigation Scheme

3 PROJECTS SA | Over \$48 million

- Coolanie Water Scheme
- McLaren Vale Water Storage
- Northern Adelaide Irrigation Scheme

8 PROJECTS VIC | Over \$165 million

- East Grampians Water Supply Project
- Lindenow Water Security Scheme
- Macalister Irrigation District Modernisation Project Phase 1B
- Macalister Irrigation District Modernisation Project Phase 2
- Mitiamo and District Reticulated Water Supply Project
- South West Loddon Rural Water Supply Project
- Sunraysia Modernisation Project 2
- Western Irrigation Network

7 PROJECTS QLD | Over \$440 million

- Big Rocks Weir
- Charleston Dam
- Emu Swamp Dam
- Hughenden Irrigation Scheme
- Mareeba-Dimbulah Water Supply Scheme
- Rookwood Weir
- Warwick Recycled Water for Agriculture

2 PROJECTS NSW | Over \$560 million

- Dungowan Dam
- Wyangala Dam

2 PROJECTS TAS | Over \$125 million

- Scottsdale Irrigation Scheme
- Tasmanian Irrigation Tranche III: Phase One

Project case studies

Scottsdale Irrigation Scheme, Tasmania

The \$57.3 million Scottsdale Irrigation Scheme project is delivering the new 9,300 megalitre Camden Dam, a mini-hydro power station, and around 90 kilometres of pipeline to distribute water to farmers.

The Scheme will provide 8,600 megalitres in new water each year and increase the regions' irrigable area by almost 13,200 hectares. This will support the growth of local producers across a range of sectors, including the region's renowned dairy, poppy and fresh vegetable industries. The Scheme will also:

- create up to 45 jobs, and generate an estimated \$13.9 million in additional agricultural activity for the Tasmanian economy
- allow for more higher-value irrigated agriculture in surrounding farmlands
- help build resilience to drought for northern Tasmanian producers



- boost local energy security with the mini-hydro power station expected to generate 623 kilowatts per megalitre.

The project is jointly funded by the Australian Government (\$25.3 million), the Tasmanian Government (\$20 million) and other partners (\$12 million).



Greater irrigable area



Surface water capture



Increased storage



Better supply



Hydro-electric power

Northern Adelaide Irrigation Scheme, South Australia

The \$155.6 million Northern Adelaide Irrigation Scheme will deliver new water treatment facilities in the Northern Adelaide Plains, constructing the infrastructure needed to treat, store and distribute recycled irrigation water to the farm gates of local producers.

By providing local growers a climate-independent source of recycled water, the Northern Adelaide Irrigation Scheme will also help improve water security and resilience to drought. The Scheme will:

- create up to 3,700 new jobs, generating an estimated \$578 million per year for the state economy
- deliver up to 12 gigalitres of recycled water for horticultural production

- increase the region's agricultural productivity, significantly boosting local sectors including agri-food production, irrigated field crops and horticulture.

The project is jointly funded by the Australian Government (\$45.6 million) and the South Australian Government through SA Water (\$110 million).



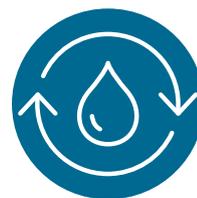
Climate resilient supply



Increased storage



Better supply



Water treatment and reuse



Mareeba-Dimbulah Water Supply Scheme, Queensland

The \$28.1 million Mareeba-Dimbulah modernisation project will increase the overall capacity of the existing water supply scheme that services the Atherton Tablelands region in Far North Queensland.

It will modernise the current water supply scheme through the replacement of around 14 kilometres of pipeline, construction of an off-stream storage and installation of automated control gates. The project will:

- unlock 8,306 megalitres of available water and support around 17,000 hectares of irrigated land within the Atherton Tablelands region
- improve service delivery to irrigators, allowing them to better manage and meet their farming water demands
- create up to 75 direct and 189 indirect jobs across the region



- increase access to reliable, predictable water supply boosting local growers in a range of sectors.

The project is jointly funded by the Australian Government (\$11.6 million) and the Queensland Government through Sunwater (\$16.5 million).



Surface water capture



Climate resilient supply



Improved storage



Better supply



South West Loddon Rural Water Supply Project, Victoria

The \$89.9 million South West Loddon Project extends the Wimmera Mallee stock and domestic pipeline to provide a secure predictable water supply for the south-west Loddon region in Victoria's north-west.

Completed in May 2020, this project is expected to grow regional agricultural production to the tune of \$35 million a year for the local economy. The scheme has:

- connected over 120,000 hectares of land to the pipeline
- increased water reliability for some 380 newly connected properties
- drought-proofed local farm businesses currently reliant on rain-fed dams and water carting



- secured up to 114 existing jobs and created 20 new positions.

The project was jointly funded by the Australian Government (\$20 million), the Victorian Government (\$40 million), Grampians Wimmera Mallee Water and other partners (\$29.9 million).



Climate resilient
supply



Better supply

Priorities: the next two years

- **Delivering** on the existing water projects already underway.
- **Developing** a strong partnership with states and territories and other stakeholders.
- **Implementing** a national water infrastructure investment framework with the states and territories.
- **Progressing** a world best science program to ensure that water infrastructure investment decisions are underpinned by world best science.
- **Sharing** new science with stakeholders, including the public, to help build understanding and awareness.
- **Determining** where new water resources can be sustainably developed.
- **Identifying** a pipeline of priority projects through a water infrastructure investment program.
- **Investing** in new projects backed by the Australian Government's additional \$2 billion commitment.
- **Communicating** the work of the National Water Grid Authority to stakeholders.
- **Strengthening** public engagement on water infrastructure matters through the work of the Advisory Body.
- **Laying** the foundations to grow our agricultural output, increase water security and help build resilience.



By investing in water infrastructure, we are backing our regions, our farmers and their communities now and into the future. We are supporting our primary industries, creating resilient regional jobs and investing in robust regional economies.





Glossary of terms

Aquifer	A land formation that holds groundwater.
Brackish groundwater	Water that is beneath the ground surface which is saline, but does not have the same salt concentration as seawater.
Channels	An artificial or natural waterway designed to carry water.
Dam	A barrier or structure across a stream, river or waterway to confine and control the flow of water.
Desalination	The process that takes away salts and mineral components from saline water to make it suitable for other uses, including irrigation.
Diversion gate	A gate that can be closed or opened to direct the flow of water from the main body of water to a smaller channel.
Extraction	The taking of water from a water source, for example groundwater.
Feasibility study	The assessment of the practicality of a proposed plan or method.
Gigalitre	1,000 megalitres, which also is 1,000,000,000 litres.
Gross value of national irrigated agricultural production	The total value of the agricultural commodities that are produced with the assistance of irrigation within the nation.
Groundwater	Water beneath the ground surface.
Hydro-electric	The generation of electricity from the movement of water.
Irrigable area	An area which can be used for irrigation in a certain location.
Irrigation	The artificial application of water to land for the purpose of agricultural production.
Managed aquifer recharge	The intentional recharge of water to aquifers for subsequent use or environmental benefit.
Off-stream storage	A structure built adjacent to a waterway to capture flows diverted from that waterway.
Recharge	The process where water moves downward from surface water to groundwater. It is the primary method of how water enters an aquifer.
Recycled water	Water that has been treated and disinfected to remove sediment and pollutants. This water is suitable for irrigation and industry use. It can also be suitable for drinking, depending on how the water is treated.
Surface water	Water above the ground surface, including rivers and streams.
Weir	A large wall that holds back water in a waterway (e.g. river) so it can be diverted for other use, such as agriculture.

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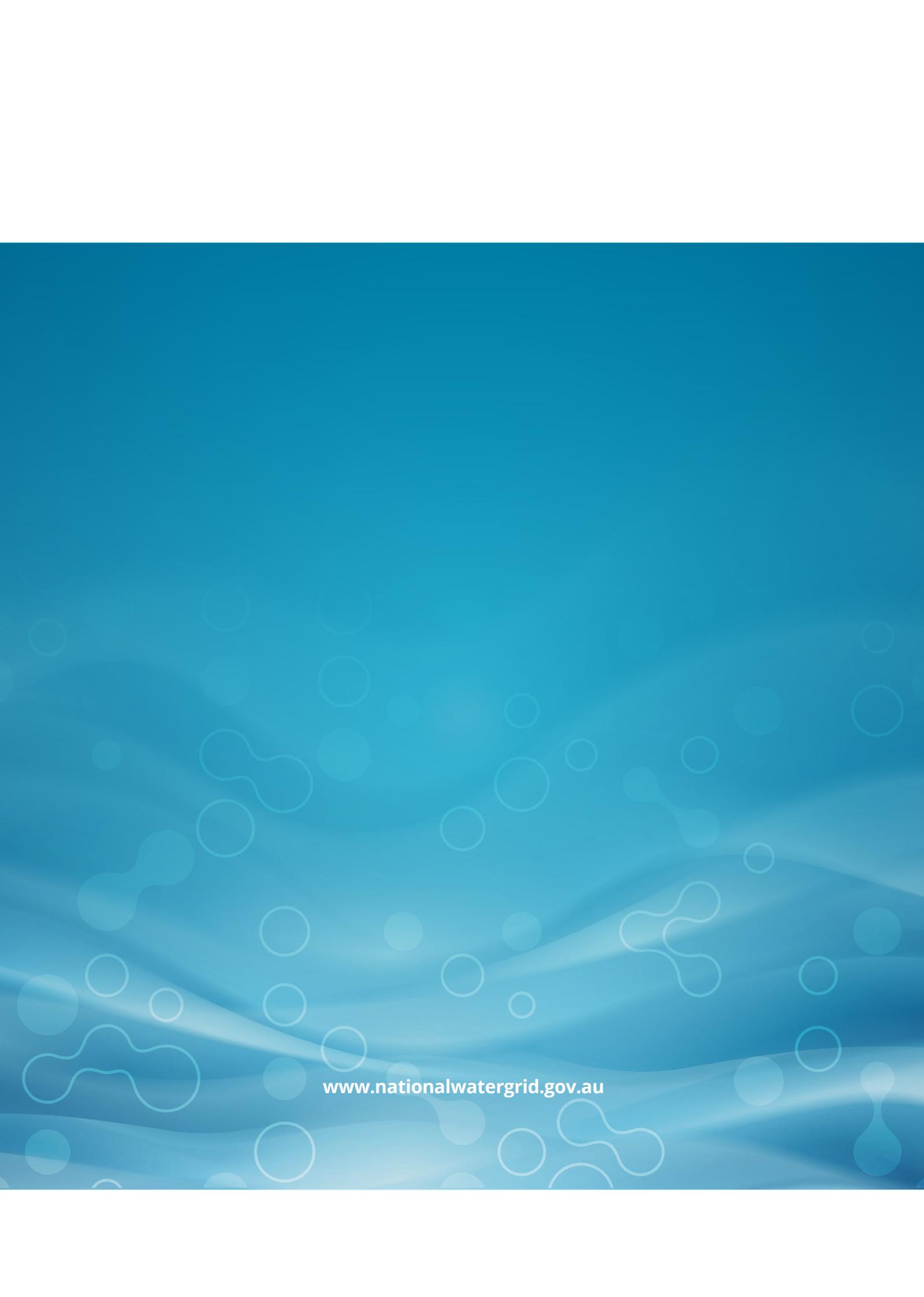
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Online resources and information:
www.nationalwatergrid.gov.au





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