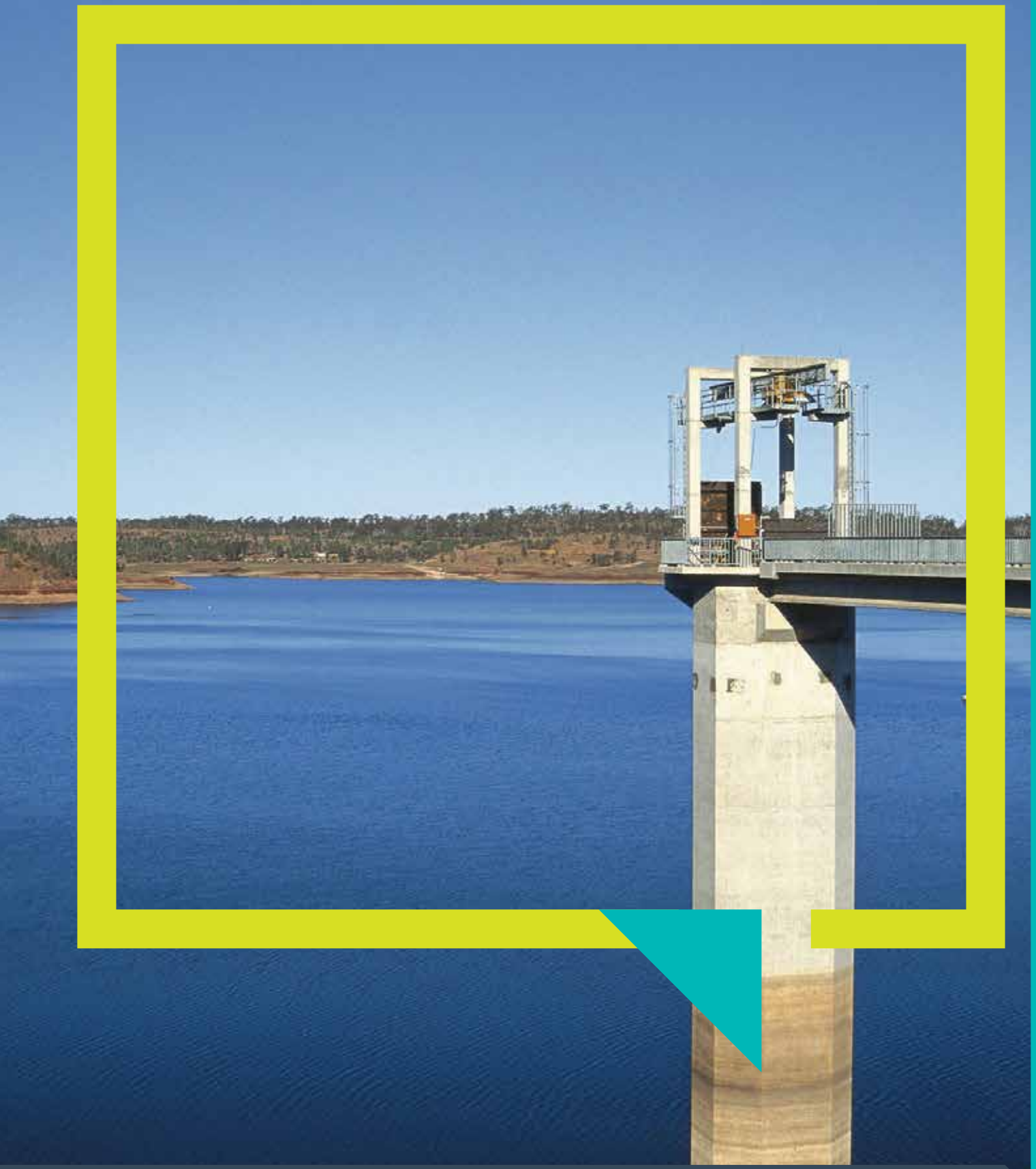


WATER

Boondoomba Dam, Wondai (Source: Tourism and Events Queensland)

WATER

OVERVIEW

Queensland's water resources are precious. They must be efficiently managed to meet the needs of our growing population and industry demand, while ensuring the sustainability of our water resources into the future.

As well as being essential for life and a vital part of our economy, water is key to our long-term prosperity, supporting our traditional agriculture and resource sectors, along with emerging regional industries like hydrogen. It is also vital for preserving the beauty and biodiversity of Queensland's natural environment and diverse ecosystems which are integral to our local communities, way of life and economy.

While this strategy is focused on state infrastructure, water and wastewater infrastructure in Queensland involves multiple levels of government and various regulatory frameworks. Together these help to provide affordable infrastructure that delivers safe, secure and accessible water supply and wastewater treatment, ensuring health and environmental standards are met. This helps maximise Queensland's economic potential, while making our communities more resilient in the face of climate change and increasing weather extremes.

Effective water supply planning and viable funding models are essential to the provision of appropriate long-term infrastructure solutions. This also ensures our 'blue infrastructure', which includes rivers, wetlands, lakes and springs, are sustainably managed to safeguard supplies and protect ecological systems.

Queensland's water supply supports several of the state's key domestic and export industries, especially agriculture. Ensuring it remains secure and affordable will also contribute to the expansion and diversification of industries, including hydrogen and renewables.

As climate change challenges water security and our ability to meet growing demand in an uncertain environment, alternatives to traditional bulk water sources – including recycled water and desalination – will need to be explored. This will include seeking out fit-for-purpose solutions for smaller towns and cities.

Burnett River (Source: Tourism and Events Queensland)

The *Queensland Bulk Water Opportunities Statement* (QBWOS) outlines the state's strategic framework for maximising the utilisation and efficiency of existing water supply infrastructure, optimising investment into new infrastructure to support economic development, and protecting water security. The QBWOS outlines four strategic objectives that guide the state's approach to bulk water supply:

- ensure safety and reliability of dams and urban water supply.
- optimise utilisation and efficiency of existing infrastructure.
- support infrastructure development that provides a commercial return to the state and publicly-owned bulk water entities.
- consider projects that will provide regional economic benefits.

Ensuring all Queenslanders have access to safe and secure drinking water, and wastewater services, is a critical priority. The Queensland Government works in partnership with local governments to ensure that communities have water and wastewater systems in place, and that these assets are sustainably managed, through good planning, proactive maintenance, and an appropriately skilled workforce.

CURRENT KEY INITIATIVES

National Water Infrastructure Development Fund and National Water Grid construction program

Accelerate the assessment of water infrastructure projects in partnership with the Australian Government through the National Water Grid Fund, and the continued delivery of projects, including private proponent projects, funded through the National Water Infrastructure Development Fund.

The Queensland Bulk Water Opportunities Statement

The strategic framework outlining the state's approach to bulk water infrastructure.

Regional Water Assessment Program

$9 million program targeting three of Queensland's most significant food bowls – Southern and Darling Downs, Bundaberg and Burnett, and the Tablelands – to identify infrastructure and non-infrastructure solutions to maximise water supply and drive future economic growth.

Rookwood Weir

$367.2 million in total for the provision of 86,000 megalitres of water for the agricultural development and security of urban and industrial areas in Central Queensland.

Round 6 of Building our Regions

$70 million over three years for local governments to improve water supply and sewerage systems.

Dam improvement program

Ensuring all dams continue to operate safely during extreme weather events, with major projects including Paradise Dam, Burdekin Falls Dam and Somerset Dam.

Water Security Program

Provides a plan for how water security can be achieved for SEQ in the next 30 years.

Rookwood Weir, Central Queensland (Source: Sunwater)

TRENDS

NEW TECHNOLOGIES, DATA AND DIGITISATION are improving water supply monitoring and management

Trends in population growth are resulting in a **GROWING OF TOTAL DEMAND FOR WATER,** particularly in SEQ.

Water supply infrastructure will need to adapt to changing water demands, with **MORE RENEWABLE ENERGY GENERATION,** the growing hydrogen industry and investigating pumped hydro opportunities

INCREASING ENVIRONMENTAL STEWARDSHIP is seeing more investment in water as assets to enhance people's lives. For example, involvement of First Nations peoples development of Blue Carbon initiatives and ecological best practice water-based tourism and recreation opportunities

WATER

CHALLENGES

Ageing infrastructure

Ageing water assets require greater maintenance and monitoring. The state is working with its water infrastructure partners to assist in planning for upgrades or new infrastructure to secure safe water for all Queenslanders.

Regional Queensland water security

In regional Queensland, the state partners with local governments to undertake urban water supply security assessments, monitor risks to security and continuity of supply, and provide assistance when needed. The challenge is to prioritise investments across a diverse range of water security needs across the state.

South East Queensland water security

SEQ's population is expected to increase to at least 5 million over the next 20 years[75] and while current water security is provided by the SEQ Water Grid and local water supplies, new infrastructure will be required to support the growing population and to meet the Queensland Government's service objectives. Seqwater's Water Security Program summarises the planning undertaken to ensure future water supply meets the desired service objectives.

Achieving greater efficiency and reducing wastage

Opportunities exist to improve the efficiency of existing infrastructure by reducing losses so that more water can be made available to the market under existing water plans. The benefit of these opportunities is that water supply can effectively be increased through technology or other measures and defer the need for costly new infrastructure.

There are also opportunities to improve the efficiency of end user water demand through education and demand management programs. State and local governments, bulk water providers and water service providers should work together to promote and encourage water efficiency.

Climate change

Queensland has a dynamic climate, from dry and hot conditions in the west, to tropical hot and wet in the north, with some of the highest and lowest rainfalls in the country. Climate change is expected to cause more extreme weather events, from extended droughts to changes in rainfall patterns, severe flooding and high intensity bushfires. These climate risks are embedded in our planning, to help ensure we plan and deliver resilient infrastructure that is appropriate, affordable and embraced by the communities it services.

OPPORTUNITIES

Making the most of existing infrastructure

The Queensland Government is entrusted with making strategic choices about the use of the state's resources, and difficult investment decisions must be made. Its commitment to finding innovative ways to use and re-use existing infrastructure means building new is not always necessary.

Working in partnership

A national approach to water security will help ensure the Australian, Queensland and local governments develop a shared list of priority projects, and a shared framework for the development and assessment of proposals. This will allow decision-makers to focus on achieving these outcomes as opposed to advocating for specific projects.

Aligning water infrastructure planning with regional economic strategies

Affordable water is a critical enabler for regional industries. Planning for water infrastructure can be enhanced through closer integration with land-use, economic and industry development strategies. Providing greater certainty to industry in regional growth precincts about water, and other economic infrastructure sequencing and delivery timeframes, will support proponents in making investment decisions.

Improving water trading and optimising markets

The state is working hard to ensure water can be allocated to where it is most needed through efficient water trading. More than 30 per cent of Queensland supplemented water entitlements are underutilised so there is opportunity to achieve better outcomes through improving market access and trading opportunities. This helps meet water demand and better utilisation of existing infrastructure before building new infrastructure.

Embracing alternative water supplies

The Queensland Government is well placed to respond to increasing water security challenges. For example, using infrastructure built during the millennium drought and SEQ Water Grid's ability to move treated drinking water around the region. There are also other opportunities to adopt an integrated water management approach and diversify water networks through stormwater harvesting and recycled water, which is currently being used to supply industry. Innovation will play a key role in ensuring solutions are fit-for-purpose and reflect community needs.

WATER

PRIORITY ACTIONS

1 Robust consideration of bulk water infrastructure (DRDMW, Seqwater, Sunwater)

Continue to undertake appropriate due diligence and robust consideration of potential bulk water needs. This will draw on various principles and frameworks for assessment, assurance and prioritisation including those outlined in the QBWOS.

2 Safe and secure water systems (DRDMW, DES, Seqwater, Sunwater)

The Queensland Government will work with and support state entities and other local providers to provide safe, secure and resilient water supplies for communities and improve stormwater and wastewater quality to improve the overall water ecosystem.

3 Water to catalyse regional economic development (DRDMW, Seqwater, Sunwater)

Water is a critical enabler for existing and emerging regional industries including hydrogen and advanced manufacturing and for the international competitiveness of the agricultural, food and beverage manufacturing and mining sectors. Infrastructure investment decisions will consider future market demand and emerging industries.

4 Identifying regulatory and other reforms to improve access (DRDMW)

Identify opportunities to improve and streamline the regulatory and policy regime for water, including clarity on roles and responsibilities for integrated water planning, and licences, providing access to reserves allocated to delay new infrastructure and facilitating innovation.

5 Best practice catchment analysis and water planning (DRDMW)

Continue to incorporate new technologies and the best, most contemporary science in the development of water plans, and to communicate this to industry to help support and reduce risk in their investment decisions.

6 Embedding climate change risk and analysis (DRDMW, Seqwater, Sunwater)

Improve water planning, water security and catchment analysis by embedding the impact of climate change on water availability into the planning process.

7 Securing water supply through research and innovation (DRDMW, DSDILGP, Seqwater, Sunwater)

The state government will continue to develop innovative approaches to securing water supply for our communities. For example, this will include a focus on cost benefit analysis and research into low-cost treatment options for communities, including small/remote communities and existing non-potable reticulated drinking water supplies.

8 Communicating the benefits of water efficiency (DRDMW, DAF)

Encourage the adoption of efficient water use and modern irrigation practices for agriculture, business and communities, to improve water use efficiencies and reduce loss.

9 Dam improvement (DRDMW, Seqwater, Sunwater)

Continue to upgrade dams commensurate with risk to ensure that communities remain safe during extreme weather events. Through this process, opportunities to increase water supply and improve flood mitigation may also be investigated.

10 Considering the full range of water infrastructure options (DRDMW, Seqwater, Sunwater)

Through its water infrastructure assessments, the state will consider the broad spectrum of actions and assets that can improve water supply, optimise water, reduce demand on existing water assets and minimise impacts on the environment. This may include options such as off-stream storage, pipelines, and water recycling. This will include communicating the benefits of recycled water and supporting public and private investment in higher value use of existing wastewater resources in Queensland.

11 Queensland Water Market Optimisation (DRDMW)

Continue to support the development of more mature, efficient and available water trading markets, to help ensure that water can be allocated towards its highest value purpose and priority industries.

12 Preserving our natural assets and contributing to water system health (DRDMW, Seqwater, Sunwater)

The state will continue to consider the health of our waterways, catchments and associated systems when assessing water supply and infrastructure proposals.

The state will continue to support catchment improvement projects that target improvement in the quality and quantity of source waters. Such projects can help to mitigate public health risks and reduce water treatment requirements thereby delivering savings on infrastructure investment.

13 Bulkwater supply planning and augmentation (Seqwater, Sunwater)

The state bulk water providers will undertake significant planning and investment to augment bulkwater supply over the next two decades to accommodate population and economic growth, and climate change impacts.

14 Securing land and maximising entitlements (Seqwater, Sunwater)

Continue to invest in securing suitable land (including pipeline corridors) to support delivery of planned future water supply infrastructure.

Optimise utilisation of existing water infrastructure and underutilised water entitlements by investigating opportunities to maximise and secure further water entitlements to provide a secure water supply now and into the future.

15 Utilise existing and new data to inform investment and release of underutilised water (DRDMW, Seqwater, Sunwater)

The Queensland Government and its entities will continue to enhance data and systems to inform decisions on water, and to enable water users and decision makers access to accurate information to support investment approaches.

16 Continued recognition and engagement of First Nations peoples in the stewardship of our natural water resources (DRDMW, Seqwater, Sunwater)

Continue to partner and work with First Nations peoples and communities to understand and recognise their rich and ongoing connection to land and water, and ensure these are recognised in water planning and also economic opportunities can be fully realised for First Nations peoples.

Chinaman Creek Dam, Cloncurry (Source: Tourism and Events Queensland)

INFRASTRUCTURE OBJECTIVES

- Encourage jobs, growth and productivity
- Develop regions, places and precincts
- Enhance sustainability and resilience
- Adopt smarter approaches

WATER

CASE STUDY

Queensland Water Markets Optimisation (QWMO)

Queensland's water resources are managed by water plans. Established under the *Water Act 2000*, they determine the total volume of water allocations that can be made available to the market, while balancing environmental impacts and the needs of different users. A water allocation provides authority to the title holder to access water from a particular source. It is a tradable asset that can be sold or leased.

In a perfect water market, surplus water held by some users is traded to other users to minimise supply shortfalls, and maximise market efficiency and productivity. Water trading is only possible in areas where trading rules have been established, so water plans provide an important framework and regulatory instrument for driving the efficient use of water resources and supporting economic growth.

In 2019, the then Department of Natural Resources, Mines and Energy launched the Underutilised Water Partnership Project to identify market inefficiencies that lead to the underutilisation of existing allocations. The assessment found across the state's 42 water supply schemes, more than 30 per cent of all supplemented water (meaning water supplied using infrastructure) had remained unused, even in dry times, over the past 10 years.

Several factors were found to contribute to this volume of unused water, including water trading complexities, information deficiencies and incentive structures. Specifically, buyers and sellers had found it difficult to identify one another, there was a lack of information on where and how much water was available, and a lack of price transparency on completed trades.

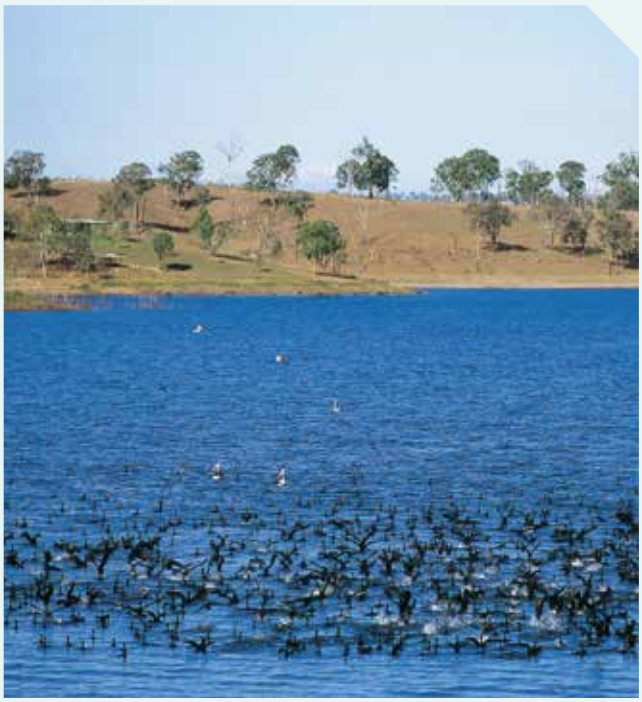
Addressing these market inefficiencies is one of the most cost-effective ways to increase water access for existing users, while expanding the market for new investors and industries, optimising the productivity of existing infrastructure and still protecting our rivers and streams.

To develop a pathway toward efficient water trading markets and address the issues identified in the Underutilised Water Partnership Project, the *Queensland Water Markets Optimisation Action Plan* was published in early 2021.

This plan sets out the following key actions:

- encourage holders of underutilised water to use the temporary trading market
- provide information on what water markets need to develop and grow
- help water users connect with brokerage
- help investors find water for development or expansion.

Efficient markets will maximise the opportunities available from our water resources and water supply infrastructure now and into the future.



Bjelke-Petersen Dam (Source: Tourism and Events Queensland)