



WATERQ:

a **30-year strategy** for
Queensland's water sector

Great state. Great opportunity.

WaterQ provides a high-level framework that will continually adjust to reflect changing community interests and aspirations, support a growing economy, protect the environment and keep pace with innovation and technology.



**LAU, 30,
FARZANA, 30,
AND ELLA, 1**

Thanks to *WaterQ*, Lau, Farzana and Ella are looking toward a bright future where our lifestyles, communities and businesses flourish and our environment is protected.

FOREWORD

The Queensland Plan embodies a shared vision of a prosperous and bright Queensland and establishes a shared responsibility to achieve this vision. And, in delivering a strong plan for a brighter future, *WaterQ: a 30-year strategy for Queensland's water sector* provides a high-level framework that will continually adjust to reflect changing community interests and aspirations, support a growing economy, protect the environment and keep pace with innovation and technology.

Our history, geography, climate and growth demonstrate the critical need to properly plan for and manage drought and flood so Queensland and its people continue to grow and prosper. However, while our state was well served by water infrastructure built by previous generations, just seven years ago South East Queensland almost became the first major metropolitan region in the western world to run out of water. In effect, long-term planning was neglected for about two decades. In turn, this led to a very serious water supply crisis and a panic-hurried government response that included debt-funding major infrastructure that is not used today because it is too expensive to operate—but is paid for through higher water bills for future generations.

Given the critical role of the water sector in growing a four-pillar economy of tourism, agriculture, resources and construction, we simply cannot afford to repeat recent-past policy, planning and investment failures in the design of our future water sector. That is why *WaterQ* establishes a necessary long-term framework to deliver a safe, secure and affordable water supply well into the future. And, in pursuing the best possible outcomes, we must leverage the unique advantage of Queensland's water sector: that our water and sewerage services are delivered by local service providers.

Future solutions will require skill and expertise, as well as investment, from all levels of government, the private sector, research organisations, water service providers and the community. Increasingly, collaborative partnerships across

catchments will also encourage water planning and management on a scale that will improve efficiency, environmental outcomes and affordability.

WaterQ identifies seven strategic priorities and actions seeking contribution from all Queenslanders to build and maintain a 'water sector that supports increased productivity, economic growth, strong and healthy communities, and a natural environment that is valued'. Importantly, *WaterQ* will be reviewed every five years, ensuring we continuously update our understanding of how we can address the challenges we face and meet our responsibility to our communities.

WaterQ is one of several sector-specific strategies that will help deliver the government's vision for Queensland, including:

- *Queensland's agricultural strategy*
- *DestinationQ*, a 20-year plan for tourism
- *ResourcesQ*, a 30-year plan for the resources sector
- *PowerQ*, a 30-year strategy for Queensland's electricity sector
- *Governing for growth economic strategy and action plan*
- *Science and innovation action plan*.

Together these strategies will ensure our future actions align with priorities and values identified by Queenslanders.



Hon Campbell Newman MP
Premier of Queensland



Hon Mark McArdle MP
Minister for Energy
and Water Supply

"Our vision is for a water sector that supports increased productivity, economic growth, strong and healthy communities, and a natural environment that is valued."



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EVERYDAY QUEENSLANDERS

Water is essential to every Queenslander. Throughout this report, you'll meet some of the people whose careers, homes and businesses will be touched by the changed future this strategy represents. Enjoy their stories.

This publication has been compiled by the Department of Energy and Water Supply.

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INTRODUCTION

Water is essential to Queensland. Life-giving and life-sustaining, water access, affordability and quality are all vital to our future.

WaterQ responds to the significant changes and challenges that our state will face in the next three decades. Within this time, more of Queensland's population will live outside of South East Queensland than ever before. Making water available when, where and how it is needed will help to protect our lifestyle, drive our economy, make our regions strong and prosperous and attract people to work and live there.

The strategy sets out the long-term vision for Queensland's water sector, which provides water and sewerage services across the state. Working toward the 30-year vision for Queensland's water sector is a series of actions. The actions for the first five years have been identified and some are under way. These will deliver the sector-wide shifts needed to meet future challenges.

WaterQ seeks to revolutionise and empower communities to implement innovative solutions that meet their unique needs. As a diverse sector with more than 170 service providers, one size will not fit all. This strategy seeks to embrace present diversity while readying the sector for the changes and challenges ahead.

The strategy prioritises seven key issues that will enable a secure, prosperous future for Queensland:

- increased customer empowerment and community education
- equitable and affordable water
- efficient and productive water use
- responsible and productive water management across Queensland
- a skilled and sustainable water sector
- smart regulation that encourages private sector investment
- innovative technology and infrastructure.

These priorities bring together the water sector, private sector, community and government. Together, we will redesign a water future for Queensland that is affordable, accessible and where water is at a quality that meets our needs.



SHARON, 40

Sharon wants a future where her children and grandchildren always have a safe, secure and affordable water supply. She thinks this strategy is a step in the right direction.

CHALLENGES FACING QUEENSLAND'S **WATER SECTOR**

Queensland's water sector has 173 different providers of water, sewerage and drainage services.

The widespread and diverse sector serves communities from just a few hundred people through to millions. It plays a vital role in supporting all water users—households, agriculture, business and industry alike. It directly affects the Queensland economy and provides essential environmental stewardship by managing catchments, dams, stormwater and effluent discharges.

The water sector also faces many challenges and needs a strong, long-term framework to guide it during the next 30 years and beyond.

UNIQUE **DIVERSITY**

The diversity of the urban water sector in Queensland is unique.

Local government or local government businesses mostly provide drinking water and sewerage services, while the Queensland Government provides some bulk water supplies.

While diverse in ownership, the sector also ranges in size and capacity. The largest service providers in South East Queensland service a population of more than one million people, while very small service providers serve some of the world's most remote areas in the arid west and wet tropical north. Regardless of size and geography, every service provider needs to deliver services when, where and how they are needed by their local community.

SYLVIA, 75

Sylvia understands having access to water is essential to our lifestyle choices. She's experienced Queensland's droughts, increasingly tough water restrictions and she remembers how her garden died. She's delighted this strategy will help to deliver better long-term water security for Queensland.



NATURAL DISASTERS AND CLIMATE VARIABILITY

In each location throughout Queensland, service providers face unique operating challenges. These include dealing with increasingly fragile natural environments and working through adverse climatic conditions, including regular cyclones, floods and droughts.

INDUSTRIAL AGE URBAN DESIGN

Throughout Queensland, some service providers are serving towns that were planned and built with limited regard for efficient urban design or future-thinking infrastructure.

With size comes different challenges. In larger towns and cities, the water sector has to continually invest in infrastructure to serve a growing population. However, in rural and regional areas, many service providers are grappling with how to maintain the infrastructure they have with a shrinking customer base to pay for it.

CONSTRAINED CAPITAL

Historically, the Queensland Government has been seen as a provider of last resort to solve water supply shortages or service failures. These reactive infrastructure solutions have often proven to be costly and ineffective in the long term for the government, water sector and community.

The 2013 Commission of Audit recommended any new regional bulk water storages will have to be developed by the private sector unless there are compelling reasons of public good or market failure not to do so. The Queensland Government accepted this recommendation. Together, the private sector and all levels of government must consider viable funding models that enable future infrastructure to be properly planned, built when needed, and paid for when used.



CASSIE, 32

Cassie runs her own business and understands the benefits of doing business differently. As a water user, she is looking forward to the sector changes bringing better value for money.

RISING ENERGY DEMANDS

Growth in our population and industries is increasing our demands on energy. The power industry uses large amounts of water to create electricity to match this demand. Just as water is vital to electricity, large amounts of electricity are needed to produce and distribute quality water to a growing population.

POLLUTION AND DEGRADED CATCHMENTS

As we increase our water, food and energy production, we also need to balance the effects of this demand on our catchments with future development and climatic events.

Catchment health is critical for our state. We depend entirely on natural systems for our water throughout the state. Maintaining healthy waterways, including our reefs and bays, is essential.

Some catchments are already degraded, while others are vulnerable. The water sector and its customers need to address how to best use available water and manage its by-products.

A FRAGMENTED WATER SECTOR

Presently, the water sector is ill-defined and fragmented as service providers organise and deliver services in many different ways, depending mostly on their size and ability to pay for all aspects of water cycle management. Training and development may vary and many service providers cannot afford all-of-life asset management practices. However, some service providers have recognised the benefits of scale through collaboration and other practices.

LACK OF INNOVATION

Traditionally, there have not been strong drivers for innovation within the Queensland water sector and more is needed to enable the sector to change. Both the market and customers would benefit from greater innovation including right-sized infrastructure, tailored bills and water-efficient technologies.

HARD AND FAST CUSTOMER BELIEFS

Emotions run fast when it comes to the topic of water. More than any other natural resource, customers hold a strong belief that free water is a right. While rainwater falls from the sky free of charge, the reality is that water costs begin the moment it does: in its capture, storage, treatment and distribution. A key challenge for the Queensland water sector is to make water prices cost-reflective, not just cost-effective. Importantly, customers need to understand and value the services they receive.



EDUARDO, 31

Staying healthy is important to Eduardo and so are healthy waterways. He believes the strategy's plan to deliver safe and reliable water in a way that respects and protects the environment is right on track.

QUEENSLAND'S FUTURE POPULATION PROJECTIONS 2044

QUEENSLAND'S POPULATION 2011 AND 2044

2011 4.5 million 2044 7–8.9 million

2044 POPULATION BY REGION AND LOW, MEDIUM AND HIGH SERIES

GREATER BRISBANE

2011	2 147 436
2044 (L)	3 463 023
2044 (M)	3 875 657
2044 (H)	4 302 740

MACKAY

2011	171 564
2044 (L)	284 195
2044 (M)	325 269
2044 (H)	372 236

TOOWOOMBA

2011	144 258
2044 (L)	206 727
2044 (M)	232 819
2044 (H)	260 245

SUNSHINE COAST

2011	318 279
2044 (L)	538 608
2044 (M)	605 557
2044 (H)	676 457

WIDE BAY

2011	280 002
2044 (L)	369 121
2044 (M)	416 818
2044 (H)	474 240

TOWNSVILLE

2011	224 678
2044 (L)	357 769
2044 (M)	409 179
2044 (H)	470 978

2011	232 781
2044 (L)	346 126
2044 (M)	384 050
2044 (H)	425 949

QUEENSLAND OUTBACK

2011	86 631
2044 (L)	93 172
2044 (M)	103 974
2044 (H)	115 324

FITZROY

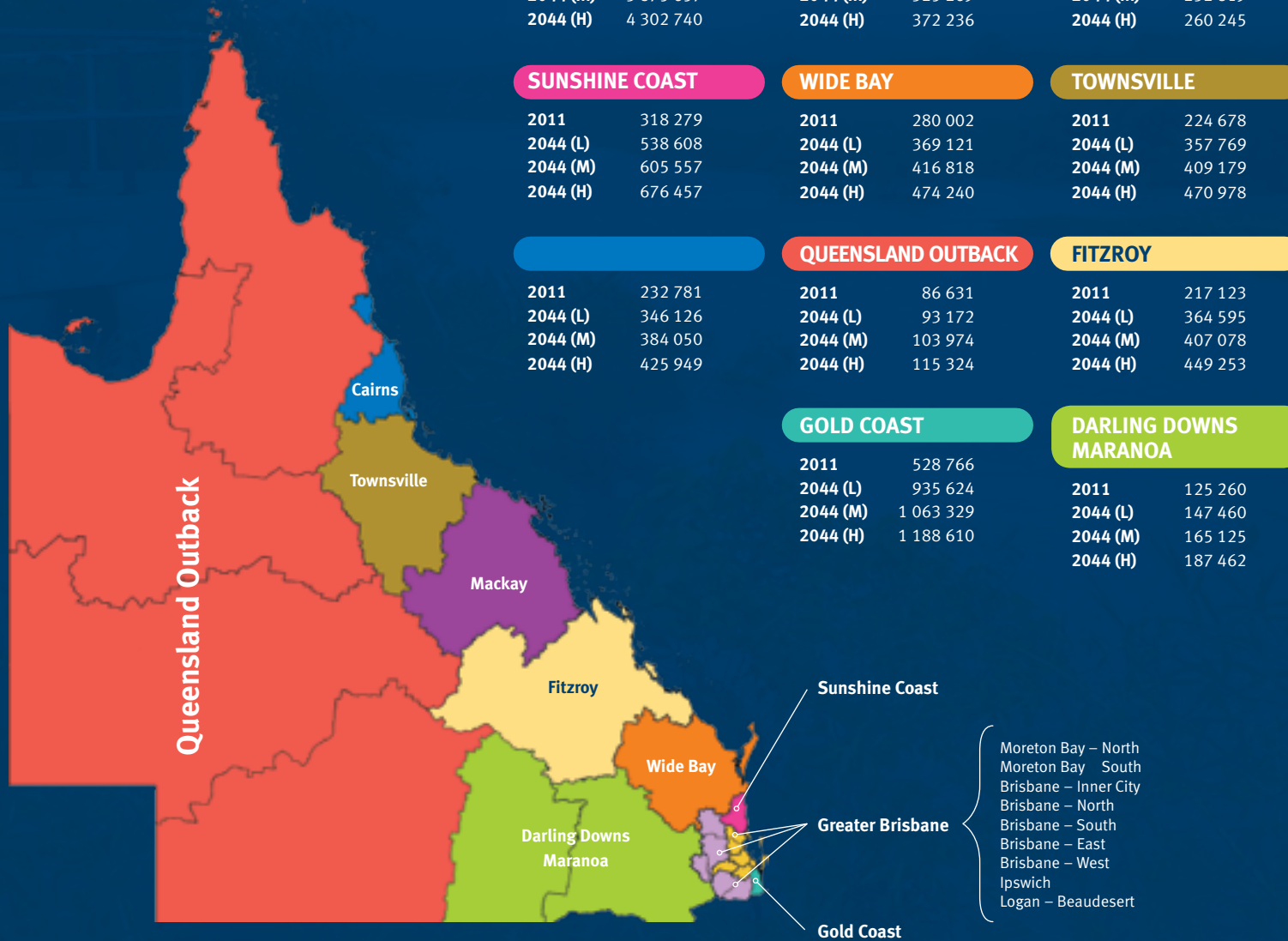
2011	217 123
2044 (L)	364 595
2044 (M)	407 078
2044 (H)	449 253

GOLD COAST

2011	528 766
2044 (L)	935 624
2044 (M)	1 063 329
2044 (H)	1 188 610

DARLING DOWNS MARANOA

2011	125 260
2044 (L)	147 460
2044 (M)	165 125
2044 (H)	187 462



POPULATION GROWTH

Current population modelling shows the state's residents will increase from 4.5 million in 2011 to between 7 and 8.9 million in 2044. In South East Queensland, the population will grow from 3.1 million to around 5.7 million while population in the regions will grow from 1.3 million to 2.2 million.

Through *The Queensland Plan*, the people of Queensland have proposed an aspirational target for half of the state's population to live outside of the heavily populated south-eastern corner, which would see more people living in the regions. While it is impossible to predict the exact numbers or population spread, the increased regional growth means there will be a critical need for increased infrastructure investment in water and sewerage services.

The *Queensland's future population projections* map (page 10) will be adjusted to align with the changing trends, especially in the regions.

.....
 "There is no 'one size fits all' solution and future decisions around water security and demand management need to be regionally focused, taking into account climatic and cultural variability." *qldwater*

Growing food supply

As Queensland's population increases, so will demand on our food supply.

Queensland's agricultural strategy has a vision of doubling agricultural production by 2040. The growing demand for food in Queensland's overseas markets provides an opportunity for the agricultural sector to substantially increase its exports.

The Australian Government's green paper on Developing Northern Australia identified the northern region of Australia—Northern Territory, Western Australia and Queensland— as having the potential to become a major food bowl. Water is essential to realising this potential. CSIRO has been given the immediate task of assessing river catchments across this region to identify the most likely opportunities for water storage.

Increased food output will mean greater pressure on regional water supplies and how water is stored and distributed.

Water security

Water security is a key enabler of population growth and will maximise Queensland's economic development potential.

To ensure Queenslanders have access to water and sewerage services as their numbers grow, water security assessment and planning that supports population growth will be essential.

This will assist service providers to better understand their water needs.

DON, 41 AND FINN, 2

Don works in water regulation. He believes that, as our population grows in the next 30 years, the water sector will also need to grow and strengthen to meet this new water demand.





STAGES OF THE **STRATEGY**

Feedback on our water discussion paper has helped to develop the strategy. We will continue to collaborate on the strategy throughout its implementation.

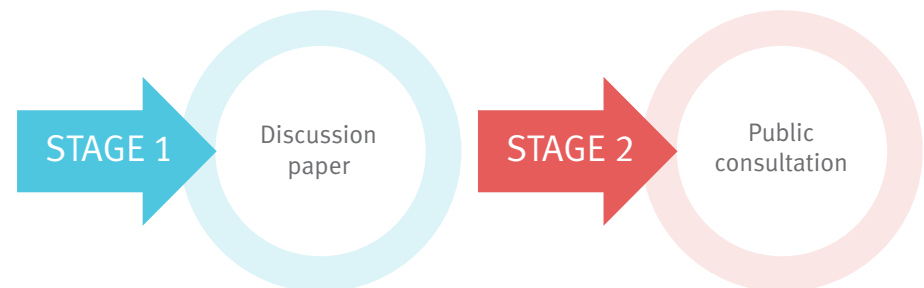
GUIDING THE **STRATEGY'S FUTURE**

WaterQ: a 30-year strategy for Queensland's water sector will remain relevant and responsive through regular review.

As a dynamic document, the actions of *WaterQ* will be renewed every five years, supported by yearly scorecards and consideration of sector successes around the globe.

Consultation will continue to be pivotal to the strategy. Just as the input of community and sector members led to this strategy, we will maintain strong relationships and alliances around the state to ensure future actions continue to reflect their needs.

Two expert groups are essential to supporting strategy implementation and innovation over the life of the strategy.



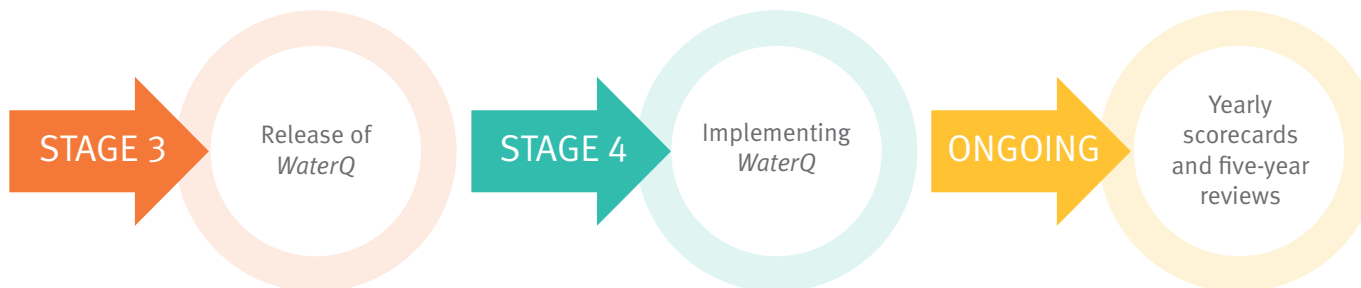
"Integrated scientific research is needed from a wide spectrum of disciplines (e.g. hydrology, ecology, information sciences, climate science, social science), combined with strong engagement between research providers and other stakeholders in the water sector." *CSIRO*

The Strategic Advisory Committee, with experts from the water sector, community, industry and government, is the first. The committee's primary responsibility will be to review progress of partners who are tasked with achieving the actions outlined in the strategy. Committee members will evaluate the effectiveness of the actions and identify any refinements needed to ensure the actions continue to address water sector challenges and opportunities.

Every five years, the Strategic Advisory Committee will also oversee a comprehensive review of the strategy to develop new five-year goals and action plans. Those reviews will also provide an opportunity to evaluate the long-term objectives and measure the progress of the sector toward those objectives.

This will allow the strategy to remain aligned with community needs, economic drivers, environmental imperatives and innovations in technology.

An industry-led water innovation panel is the second expert group. This panel will specifically foster practical solutions that will make a genuine difference to service providers around the state, big and small. The innovation panel will look at solutions around infrastructure, service delivery, water quality and security. It will help translate research and development to deliver tailored solutions, including those not related to technology. While its immediate focus will be to address predominantly regional water sector issues, the innovation panel may also consider solutions for customers in the long term.



JAMES, 5

James loves inventing and loves playing in water. It's possible that by the time the strategy ends, James will have created a new way to do more with less water.

STRATEGIC PRIORITIES TO 2044

WaterQ: a 30-year strategy for Queensland's water sector sets seven long-term strategic priorities for the state's water sector.

1

Customer empowerment and community education

Because of their knowledge and access to information, customers will make informed decisions about what they need and will access many products with flexible pricing options.

Communities will know where their water comes from, where it goes and the impact their activities have on the environment.

2

Equity and affordability

Customers will access water products and services that are safe and affordable. Water billing and pricing will be transparent and easily understood.

Complaint resolution services will be easily accessible to all.

3

Efficient and productive use of water

Our natural resources will be managed effectively and our products and services will use less water and energy.

Efficiency will be the norm, including some waste and sewage treatment plants becoming energy generators.

4

Responsible and productive water management

Water security will be our watchword as we best use our available water to grow our economy and protect our environment.

This will ensure sufficient water is available where and when it is needed, at the right quality for every consumer: households, community, industry, agriculture, mining and energy.

Our infrastructure will suit our changing population and we will look to offset these operational and capital costs in new ways. Local decision-making will drive regional development.

Innovation will be evident everywhere, from private infrastructure investment right through to new technologies that improve how we use water and protect our environment.

THE FIRST FIVE YEARS ARE CRITICAL

Within each of the seven strategic priorities are immediate actions for the next five years. These early actions are essential to help the water sector begin laying the foundations for the systemic, widespread change that will be needed to meet population growth. Because every region and every provider is different, the actions seek to support this diversity while leading the way to change.

5 Skilled and sustainable water sector

Clearly defined skill requirements, along with training and career development pathways, will ensure service providers have the right skills and resources. Recognised and resilient, the water sector will then attract and retain the best people it needs to deliver the best service.

Innovation, local decision-making, economies of scale and increased efficiencies will allow service providers to create better services and price benefits for customers, as well as build and maintain their assets.

6 Smart regulation and attracting private sector investment

Light-handed regulation will unleash opportunities for service providers, promoting productivity and innovation while enhancing performance and accountability.

In response, the private sector will develop and invest in innovation and become increasingly active participants in the water sector.

7 Innovative technology and infrastructure

The private sector will work closely with the water sector to harness creativity, share ideas and solutions, and embrace new opportunities. Consumers, regions and the environment will all benefit.

Clever technology will help maximise infrastructure and resources, as well as innovative thinking through strong partnerships across service providers, academic, research and professional bodies. The resources and agriculture sectors will also embrace these innovative water solutions.

Throughout Queensland, urban design principles will be the norm to encourage water efficiency, minimise waste and respond to the changing climate.



HAYLEY, 25

Hayley remembers when South East Queensland nearly ran out of water in 2007. She's glad there is now better planning in place and infrastructure will be built and ready when it's needed.



HOW WILL WATER CHANGE IN THE NEXT 30 YEARS?

10

YEARS

TECHNOLOGY

Water-efficient, water-less and other technologies will be part of our homes and industries.

Interactive meters and sensors will be integrated into water and energy systems, providing real-time, accurate information about water consumption. This means customers will be able to make better decisions about how and when they use this valuable resource.

Sewage treatment plants will be used to generate energy instead of just using it.

BALANCE

We will balance the effects of supply and demand better between agriculture, mining, urban development and our catchments.

In response, we'll see advances in water quality offsets, a maturing water market and greater reuse opportunities.

SMARTER THINKING

As the sector matures, our service providers will share their skills, knowledge and investments to deliver better value for money for all.

Developers, water professionals, service providers, governments and customers will all work together.

20

YEARS

INNOVATION

Cities will install smart systems that not only prevent run-off pollution in rivers and lakes but treat water to provide reuse opportunities.

Advanced water technologies will help cities recycle and reuse water locally, and reduce the energy used to transport water.

FIT-FOR-PURPOSE WATER

Fit-for-purpose water will provide the bulk of our agriculture and mining water.

Our industries will be co-located so the waste of one becomes a resource for another. Agriculture and mining waste by-products will generate new business opportunities.

ADAPTIVE INFRASTRUCTURE

Modular, mobile, low-cost water supply and sewage management infrastructure will be used to meet changes in our economy and population.

We will export our skills and knowledge to help our neighbours develop more sustainable solutions.

30

YEARS

PURPOSE-BUILT PRECINCTS

Our communities and cities will be lifestyle precincts.

We will live, work and play in these well-planned precincts with low cost, modular water and sewerage services allowing us to use more than one source of water, including rainwater, reuse water and stormwater.

SUSTAINABLE SECTOR

Our catchments will be sustainable and productive. Water markets, water trading and reuse will be the norm.

Our infrastructure and service delivery approach will reflect our diversity, our needs and our changing climate.

WORLD LEADER

Our water sector will be resilient, innovative and lead global thinking.

Queensland will have world-class innovation with services designed and delivered in collaboration by public and private sector partners.

As Queenslanders, we will only use and pay for what we need.

COLIN, 49

Colin works in the water sector. He's looking forward to the changes the strategy will bring to grow a resilient and strong sector, protect the environment and encourage smarter water use.



CUSTOMERS

STRATEGIC PRIORITY #1

Customer empowerment and community education

.....
Customers will know more about their water services and choose how these services are delivered.
.....

ACTIONS TOWARD 2044

.....

Start: 2015

Delivery partners

Service providers, customers, advocacy groups, private sector, state government, local government

In the next five years, we will:

- **encourage flexible pricing, including new tariff structures, to meet customer and service provider needs**
(Action 1.1—Innovative tariff structures)
- **provide greater product choices to customers by championing customer water plans**
(Action 1.2—Customer water plans)
- **improve customer awareness of services through engagement and information**
(Action 1.3—Engagement and information).

EMPOWERING AND EDUCATING CUSTOMERS

Water pricing is a sector-wide challenge. Service providers need sufficient revenue to maintain and build infrastructure and should set prices accordingly. In many small towns, however, there are too few customers to provide that revenue and service providers must also cater for low-income and vulnerable customers.

At present, many customers do not understand the costs involved in providing water and sewerage services and lack awareness of the extensive infrastructure behind these services.

Charging for water services usually has two parts: a variable charge based on consumption and a fixed access charge. The fixed access charges are generally the largest component of a water bill. These charges pay for building and maintaining the water and sewerage networks. Water usage charges (charged per kilolitre of water used) pay for storing, transporting, and maintaining drinking water quality. These charges also pay for issuing and managing customer accounts. These charges may be tiered so the more water you use, the more you pay (user pays).

Customers may be prepared to pay different prices for different standards of service while drinking water quality is maintained.

CASE STUDY

PRICING RIGHT: UNITED KINGDOM

In England and Wales, Ofwat, the water services regulation authority, is the economic regulator for the water industry.

One of Ofwat's roles is to set price controls for the sector. Price controls are set for a five-year period and they determine the prices a service provider can charge, as well as the services they must deliver.

Because consultation is needed to balance required investment with keeping bills down, Ofwat works with industry to make sure each company respects and protects customers' interests, improves its efficiency and ensures the company has enough money to finance its functions.

"The empowerment of customers does not occur if they are not informed about plans for new development service standards and pricing. Openness and transparency therefore become essential if customers are to be supportive of new developments." *National Seniors Australia*

Action 1.1

Innovative tariff structures

Service providers will investigate alternative pricing options to meet customer and business needs.

For example:

- fixed charge for water and sewerage with tiered consumption charging for water
- seasonal/peak tariff, where a varied rate may be charged
- water budgeting where a service provider quantifies the amount of water typically used by a water-efficient customer and sets higher tiers above this.

Action 1.2

Customer water plans

Customer water plans will allow customers to choose the plan that best suits their lifestyle and matches the volume of water for which they are willing to pay.

Water plans will help customers to increase their understanding of their water use and may also encourage water efficiencies. For example, customers could sell back their unused portion of water to the service provider. In turn, service providers may also help customers obtain water-efficient devices.

Transparency and accountability will be part of these plans. Service providers will report on business performance and pricing as part of key performance indicator reporting.

Action 1.3

Engagement and information

Service providers are encouraged to engage with their customers to clearly understand their evolving needs. They will also be encouraged to inform customers on the value of their services.

In many parts of Queensland, water supply and sewerage charges are combined in a rates notice or are not easily identified. This means households find it hard to work out their water use. Better information and comparisons can help raise awareness of water use and costs to influence how people use and value water.

Service providers could also use modern technology to avoid the need for physical meter reads, identify leaks and gather information on network performance. Modern metering technology will also allow customers to monitor consumption.

In the future, a common approach to water and electricity metering may be possible.

CUSTOMERS

STRATEGIC PRIORITY #2

Equity and affordability

Water services will be affordable, have more transparent pricing and provide customers with specialised dispute resolution.

ACTIONS TOWARD 2044

Start: 2015

Delivery partners

State government, Residential Tenancies Authority, service providers, customers, advocacy groups, Energy and Water Ombudsman Queensland

In the next five years, we will:

- promote user-pays approach to services (Action 2.1—Investigate tenant billing)
- work with community on service standards (Action 2.2—Customer service standards)
- create a more efficient and transparent concessions program across water utilities (Action 2.3—Water concessions)
- provide consistent state-wide dispute resolution service for customers (Action 2.4—Dispute resolution).

MAKING WATER MORE AFFORDABLE

The water sector is facing considerable challenges around pricing and affordability. In many small towns, the customer base is too small for customers to share the full cost of the network.

One issue is that service providers must also cater for low-income and vulnerable customers. Presently, eligible customers can access hardship concessions from the state government and service providers.

Another issue is dispute resolution. In South East Queensland, water customers can access the dispute resolution service offered by the Energy and Water Ombudsman Queensland. This service is available if a customer cannot resolve a matter with their service provider. Customers outside of South East Queensland generally access dispute resolution through their local government as their service provider.

Water billing is also an issue. Within Queensland, about 30 per cent of homes are rented and many tenants do not pay for their water usage. Presently, tenants only pay for water consumption if their rental premise is metered and is water efficient and if their tenancy agreement states they should pay.

Action 2.1 Investigate tenant billing

Although many landlords strongly argue for direct tenant water billing where the tenant directly receives and pays their water bill, just as many renters argue against it because they don't consider there would be an equivalent reduction in rent.

The Queensland Government will investigate the costs and benefits of full tenant billing. This review will also consider circumstances where a tenant may be billed individually for water if the landlord meets the necessary costs of individual water meters.

In the interim, a plan to allow landlords to pass consumption charges onto tenants—regardless of water efficiency—is being investigated and implemented where practical. Under this plan, the premises must still be metered and the tenancy agreement must allow tenants to pay for their consumption and identify if the premises are water efficient.

Action 2.2 Customer service standards

Service providers already have customer service standards. The next step is to develop those standards to reflect community needs so that customers can understand the costs involved in delivering their services.

These final service standards will be published and accessible to customers.

Action 2.3 Water concessions

Concessions are a critical issue for the community and will be the focus of a report to the Queensland Government.

Action 2.4 Dispute resolution

Under this action, the potential benefits and costs of extending the role of the Energy and Water Ombudsman to large service providers will be investigated. This will enable customers, including tenants, to access external, consistent dispute resolution services. Tenants will also continue to access dispute resolution processes through the Residential Tenancies Authority.

Extending the role will increase the transparency of the water sector and give an important baseline on satisfaction levels within the sector.

Prior to this, a review will be completed, including extending coverage beyond South East Queensland.

GRAHAM, 66

Graham is an engineer who works in the water sector. He knows the sector's diversity and understands the importance of customers and their needs. He is delighted this strategy will help deliver a better Queensland.



SERVICE PROVIDERS

STRATEGIC PRIORITY #3

Efficient and productive use of water

Service providers will promote products and services that use less water and energy to help customers embrace efficiency.

ACTIONS TOWARD 2044

Start: 2014

Delivery partners

Service providers, industry, agriculture, private sector investors and innovators, research organisations, mining and resources industry, state government, local government

In the next five years, we will:

- continue to encourage rural water use efficiency (Action 3.1—Rural Water Use Efficiency for Irrigation Futures program)
- advise on appropriate technologies and solutions, via an industry-led water innovation panel (Action 3.2—Promote benefits of combined energy and water efficiency)
- increase uptake for fit-for-purpose recycled water by industry, mining and agriculture (Action 3.3—Showcase best practice)
- investigate greater opportunities for decentralised systems including micro-utilities to deliver energy and water services (Action 3.3—Showcase best practice).

CHANNELLING ECONOMIC GROWTH

Water and electricity play important roles in industry, mining, energy, agriculture, fisheries, forestry and urban sectors.

Energy

The Queensland water sector uses significant amounts of energy to treat and deliver clean, safe and affordable water to farms, irrigators, businesses and homes. Similarly, water is essential for energy production. A priority for the water sector is to become more energy efficient.

Water is also a key input in producing energy itself. The International Energy Agency forecasts demand for fresh water for world energy production is on track to increase by 85 per cent within the next 25 years. The Water Services Association of Australia reports that each \$1 increase per megawatt-hour of electricity will result in a \$1 million rise in costs to treat and transport water. It will be equally important for the electricity sector to explore opportunities to reduce water use for their activities.

Activities that use water also generate wastewater products that need to be effectively managed. Advances are being progressively made to utilise this waste better. In some countries, sewage treatment plants are generating energy to meet their plant operation needs and supplying the surplus for other activities.

Striving to achieve efficient practices and technologies across the water and energy sectors will create more resilient and innovative industries.

CASE STUDY

**ENERGY FROM SLUDGE:
GOLD COAST**

The Coombabah and Stapylton Program Alliance (CaSPA) was awarded the 2013 Infrastructure Innovation Award by the Australian Water Association (Queensland branch) for introducing technological advances.

Since 2012, thanks to innovation, the Coombabah Sewage Treatment Plant has used the biogas (65 per cent methane gas) produced by waste-activated sludge to power the anaerobic digesters within the plant.

Source: Gold Coast City Council

Water

The agriculture, industry and mining sectors are integral to the Queensland economy and water is vital for their continued growth. Increasingly, these sectors need to explore innovative ways to do more with less and use finite water resources more than once to sustain their growing demand. Collaborating, co-locating and creating better efficiencies are all possible solutions.

The agriculture sector is the backbone and social fabric of many rural and regional communities. Queensland's agriculture commodities had a gross value of production of \$13.7 billion in 2012–2013. The state government is committed to doubling agriculture production by 2040. *Queensland's agriculture strategy* presents a framework for achieving this goal, including initiatives such as delivering secure and defined water entitlements for agriculture.

The Australian Government is looking to Northern Australia—including Queensland—as the next major food bowl. CSIRO has been tasked to assess opportunities for new dams. More information is at: www.northernaustralia.dpmc.gov.au/sites/default/files/papers/greenpaper.pdf.

Action 3.1
Rural Water Use Efficiency for Irrigation Futures program

The continuation of the Rural Water Use Efficiency for Irrigation Futures (RWUE-IF) program will support the agriculture sector to increase productivity by using less water.

Regions such as the Murray Darling Basin will have reduced water availability and will need the latest information on water use efficiencies. Additionally, new areas such as the Flinders–Gilbert irrigation area will benefit from best management practices.



SHEAMUS, 18

*“Water is essential for life; the blood of the earth. We must respect this precious resource in order for it to be readily available.”
Winner of 2013 Healthy Waterways Water Warrior Award*

Action 3.2
Promote benefits of combined energy and water efficiency *and*

Action 3.3
Showcase best practice

Water and energy-efficient technologies, including the role of decentralised systems, will be explored through the industry-led water innovation panel.

Water provision is often highly infrastructure intensive. Optimising the use of this infrastructure has the potential to generate significant efficiencies. Alternative water use technologies such as stormwater and recycling will also form part of our water security future.

Service providers may be able to make commercial decisions about local energy solutions such as on-site energy generation. Service providers will be encouraged to work with power generators and distributors to investigate the feasibility of these opportunities.

Generating energy from waste is another avenue being considered and the Queensland Government is in the early stages of developing a draft energy-from-waste policy. This policy will consider recovering energy and other by-products from waste, including sewage.

GOVERNMENT AND SERVICE PROVIDERS

STRATEGIC PRIORITY #4

Responsible and productive water management

Sufficient water will be available where and when it is needed, at the right quality for customers. Innovative approaches will be used to manage water use and environmental health, and generate regional economic opportunities.

ACTIONS TOWARD 2044

Start: 2014

Delivery partners

Industry and relevant stakeholders, service providers, private sector, research organisations, wastewater providers, state government, local governments, Local Government Association of Queensland, water users

In the next five years, we will:

- provide opportunities for economic growth and development through greater access to water (*Action 4.1—Transforming the water business*)
- increase understanding of water supply and demand needs (*Action 4.2—Regional water supply security assessments*)
- improve waterway health through innovative management (*Action 4.3—Catchment management partnership program*).



MANAGING OUR WATER RESOURCE

Water is required for continued economic and population growth. Water must be available in sufficient quantities and appropriate quality across all of Queensland—households, communities, agriculture, construction, mining, energy, industry, tourism and the environment. It is also critical to delivering *The Queensland Plan* targets and its aspirations for economic growth and regional expansion. Community wellbeing and economic growth rely on access to secure, affordable and reliable water supplies.

Queensland's water resource planning program provides a strategic framework to best allocate and manage water by setting a responsible balance between the productive use of the resource and providing for non-consumptive uses such as tourism, cultural values, commercial and recreational fishing, and catchment health.

BEN, 10

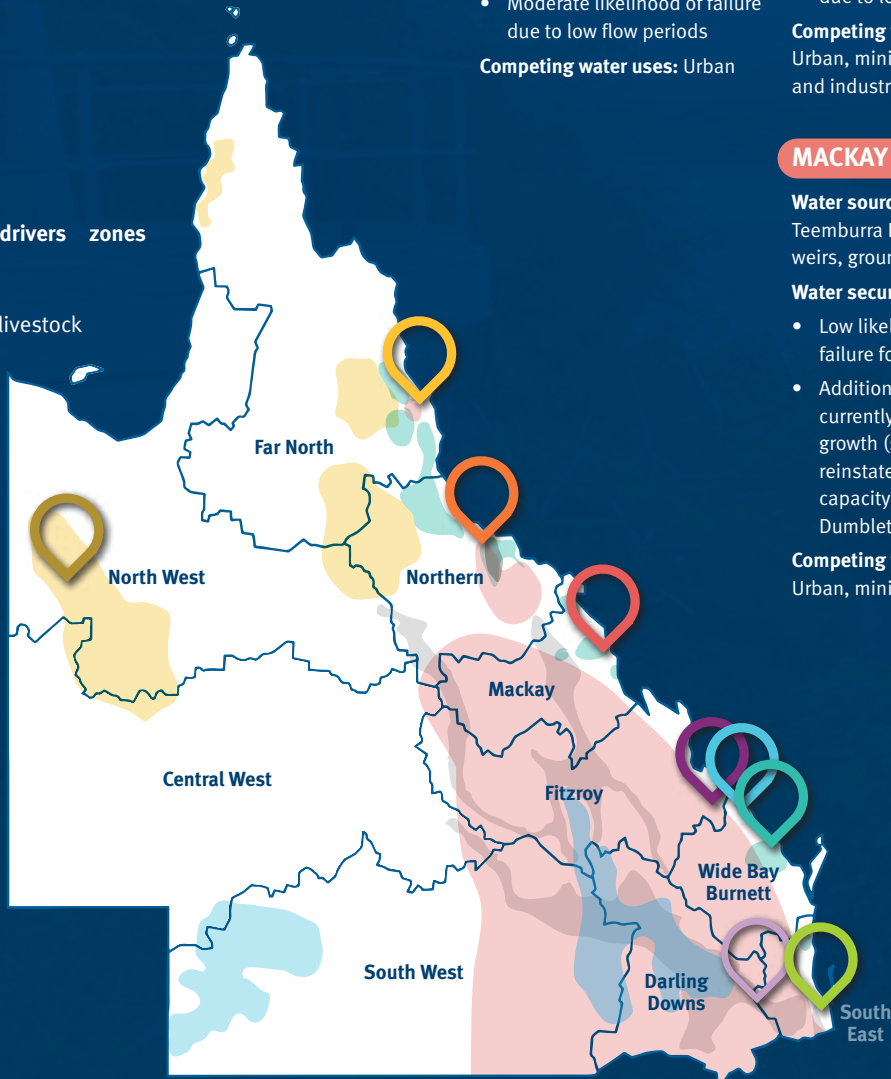
Ben's not sure what he wants to be when he grows up. He could end up a miner, a farmer or a builder. Whatever he does, this strategy will make sure water is available where and when he needs it.

CURRENT KEY GROWTH AREAS, THEIR WATER SOURCE AND LEVEL OF WATER SECURITY

LEGEND

Regional economic drivers zones

- Gas
- Grain, cotton, livestock
- Minerals
- Sugar
- Coal basins



CAIRNS

Water source: Copperlode Falls Dam, Behana Creek and Lake Morris

Water security:

- Reliant on annual inflows
- Moderate likelihood of failure due to low flow periods

Competing water uses: Urban

TOWNSVILLE

Water source: Ross River Dam, Burdekin Falls Dam, Paluma Dam, Crystal Creek

Water security:

- Moderate likelihood of failure due to low flow periods

Competing water uses: Urban, mining, agricultural and industrial

ROCKHAMPTON

Water source: Fitzroy River barrage

Water security:

- Reliant on annual inflows
- Limited response time to low season inflows

Competing water uses: Urban, agricultural and industrial

TOOWOOMBA

Water source: Cooby, Cressbrook and Perseverance dams, groundwater

Water security:

- Water supplies adequate for current population

Competing water uses: Urban

MACKAY

Water source: Kinchant Dam, Teemurra Dam, Pioneer River weirs, groundwater

Water security:

- Low likelihood of supply failure for current demand
- Additional entitlements currently available to meet growth (subject to the reinstatement of the full capacity for Mirani and Dumbleton Rock weirs)

Competing water uses: Urban, mining and agricultural

GLADSTONE

Water source: Awoonga Dam

Water security:

- Water supplies adequate for current demand with large storage capacity available
- Planned options for connection to Fitzroy River to augment supply for future needs

Competing water uses: Urban and industrial

BUNDABERG

Water source: Fred Haigh Dam, Paradise Dam, groundwater

Water security:

- Low likelihood of supply failure for current demand
- Additional entitlement currently available to meet growth

Competing water uses: Agricultural

MOUNT ISA

Water source: Julius Dam, Lake Moondarra

Water security:

- System capacity is good
- Dependent on seasonal inflows
- Few emergency supply options
- Population growth highly variable due to indeterminate industrial growth

Competing water uses: Urban, mining and industrial

SOUTH EAST QUEENSLAND

Water source: Bulk water supply system

Water security:

- Water supplies adequate for present population

Competing water uses: Urban, agricultural and industrial



.....

"The discussion paper's call for improved long-term planning is possibly the most important requirement for the sustainability of urban service providers in small and remote communities." *qldwater*

.....

Two major benefits from the water resource planning program have been the creation of about 14 600 tradeable water allocations and about 2 million megalitres of extra water being set aside for future uses (known as unallocated water).

Unallocated water has recently been released by the Queensland Government to support agriculture and industry development as well as to promote town water supply security and residential growth in the Baffle, Great Artesian Basin and Gulf water resource plan areas.

Tradeable water allocations allow users to buy water to expand their operations or sell water they do not need, giving them significant flexibility in their water access and use. Water allocations use the market forces of supply and demand to drive water use efficiency and innovation elsewhere in the economy.

The Queensland Government is modernising its water regulatory framework and streamlining and improving business processes. Through the transformation of its water business, it is putting customers first by delivering seven client benefits:

- protect security of entitlement holders
- support economic growth and development
- increase options for access to water
- increase opportunities for local and self-management of water
- achieve faster and easier ways to complete simple water licence transactions
- modernise and improve options for dealing with government
- quicker and simpler water planning processes.

Major infrastructure to store, treat and distribute water is costly to build, both economically and environmentally. In the foreseeable future, the Queensland Government is unlikely to fund new bulk storages. Greater emphasis will be placed on ensuring the best possible use of existing dams and incentivising private sector investment. If there is a need for new dams, the private sector will have a stronger role.

A major theme in sustainably growing our water demand is doing more with less. This includes using resources more than once and taking a whole-of-catchment approach to use existing water supplies better and for the right purpose.

Connecting stakeholders so they can share local knowledge and information will lead to better planning for future growth at regional or catchment levels. Queensland's regional water supply security assessments encourage local decision-making to meet changing water demands. They will also enable service providers, water users and the community to invest in innovative approaches to water security, as well as make investment decisions that consider social, environmental and financial priorities.

Action 4.1**Transforming the water business**

The Queensland Government has set a very clear path to provide customer-focused and modernised natural resources businesses. To deliver this, it is making changes to the *Water Act 2000* and streamlining and improving business processes by transforming its water business. These changes are delivering security, certainty and flexibility to water users by balancing economic, social and environmental outcomes.

The government is engaging with its customers and industry representatives about these changes to ensure services are useful, understood, desirable and sustainable, and to provide timely access to a broad range of online services.

Water resource plans will be easier to understand and legislative provisions will be streamlined to deliver these plans quicker through more efficient processes.

Water markets will be expanded across Queensland, starting with converting entitlements to tradeable water allocations in the Wet Tropics, Pioneer Valley aquifers, Burnett Basin aquifers, Condamine and

Balonne, Moreton, Logan, Burnett and Fitzroy areas. This will ensure water is available to support economic development opportunities.

The government will provide proponents of major projects certainty of water access early in their project development. This will enable investor confidence and allow them to progress their development with certainty.

More flexible and simpler options for releasing unallocated water will allow fit-for-purpose processes to provide faster access to the almost 2 million megalitres of unallocated water available for water users and will result in reduced costs to government.

To reduce red tape for water users, the government is looking at ways to remove the need for water licences for low-risk water-taking and interference.

The government is also protecting water rights for bore owners by requiring mining companies to 'make good' where there are impacts on water supply bores. It will provide investment certainty for the resources sector by clarifying and simplifying water rights and obligations in relation to activities affecting groundwater.

These actions and initiatives will protect the security of entitlement holders, increase options for access to water and deliver an overall better water business experience for Queenslanders.

The government also intends to provide an increased opportunity for water users to play a greater role in managing their respective water supply schemes.

Finally, Queensland will transition to a fully realised water market by 2017. To do this, the government will maximise conversions of water entitlements to water allocations, provide efficient regulation for trading and simplify the framework for reserving and releasing unallocated water. This initiative will facilitate water use in higher-value activities, provide greater access to water to allow uptake of development opportunities and drive productivity that is reliant on water.

LLEW, 82

Llew has spent a lifetime enjoying Queensland's waterways. He agrees the strategy should continue to protect Queensland's enviable lifestyle.



CASE STUDY

PRESERVING OUR WATERS: LOGAN RIVER

In January 2014, a five-year project began in the Logan River in South-East Queensland to manage additional nitrogen discharges from the Beaudesert Sewage Treatment Plant.

Modelling helped to show Queensland Urban Utilities what scale of works would be needed to offset six tonnes of total nitrogen from entering the river each year as a result of population growth. In response, the company invested almost \$1 million to repair around 5 km of eroded riparian corridors close to the plant. The works include structural bank stabilisation and riparian planting.

These nitrogen savings will allow the treatment plant to continue to operate safely at its current capacity in the short term without undertaking expensive upgrades. This will release about \$6 million for investment elsewhere in the sewage network.

Action 4.2 Regional water supply security assessments

Working in partnership with service providers during the next three years, the Queensland Government will facilitate water supply security assessments for potential high-growth regions.

These assessments will forecast water demand for various population growth scenarios, taking into account water availability, reliability and multiple water users—such as urban and agriculture—sharing the same resource. These will also consider the effects of changing climate conditions, including drought and flood. This work program will help service providers to better understand their water needs. Service providers will be responsible for consulting, determining and implementing water supply solutions for their communities.

These providers will also engage with their communities to consider infrastructure solutions, as well as demand management and water efficiency as part of an overall solution.

A working group comprising the state government and Local Government Association of Queensland will oversee and provide strategic direction specific to this work program.

Action 4.3 Catchment management partnership program

The Queensland Government, with key partners, will develop a catchment management partnership program to design and oversee innovative management approaches to deliver targeted actions across catchments. This will improve waterway health and other natural resource management outcomes.

The program may include best practice guidelines, stakeholder engagement, market mechanisms and incentives, and offset programs. Working across governments and in partnership with stakeholders, the aim is to deliver solutions that optimise outcomes at least cost with no new regulation.

AASMI, 6

At school, Aasmi is learning about water and how important it is for her, her family and to many Queenslanders. Thanks to this strategy, better sharing of water will mean the environment is protected and the economy will continue to grow.



GOVERNMENT AND SERVICE PROVIDERS

STRATEGIC PRIORITY #5

Skilled and sustainable water sector

.....
Service providers will have the skills and resources to respond to the challenges of the future, deliver services and secure opportunities for economies of scale.
.....

ACTIONS TOWARD 2044

.....

Start: 2014

Delivery partners

Local Government Association of Queensland, state government, local government, *qldwater*, federal government, educational institutions and service providers

In the next five years, we will:

- improve the strength of service delivery through collaboration
(Action 5.1—Extend QWRAP to build regional collaboration)
- create a culture of region-wide capital planning
(Action 5.2—Promote and support service provider-led regional capital advisory boards)
- support the needs of water sector professionals
(Action 5.3—Create competency-based frameworks)
- establish a multi-disciplinary workforce to deal with climate variability, population growth and ageing infrastructure
(Action 5.4—Develop business skills programs to support service providers).



GREG, 65

LOCAL GOVERNMENT ASSOCIATION OF QUEENSLAND

"Business as usual is no longer an option for maintaining Queensland's high urban water quality standards. More than ever we must embrace innovation, re-think funding and procurement models, develop collaborative arrangements and invest in capability and skills development."



.....
"Building capacity in the water sector is most important in regional areas, particularly those areas which are predicted to grow rapidly in the future. A capable regional water sector would have the skills and tools available to consider water in all its roles."
.....

The Greater Mary Association

SKILLED STAFF WILL LEAD THE SECTOR

Appropriately qualified staff are essential to deliver safe and secure water supply. However, attracting and retaining skilled staff can be difficult for service providers, especially in rural and remote Queensland where there is a smaller population and strong competition from the resources industry for skilled staff.

Increasingly, the delivery of services is proving to be more complex and pressure is mounting on service providers and their staff. This includes greater complexity in protecting public and environmental health through water services and increasing community expectations.

Another key challenge for the sector is developing new skills. The knowledge base of the future workforce will need to be broader than its historical focus on civil engineering and physical sciences.

The Water Industry Skills Taskforce, led by the Australian Water Association, oversees a nationally coordinated effort to address the skills shortage in the water sector. The taskforce identified four priority issues:

- The water industry is not clearly defined.
- There are concerns relating to the breadth, quality and delivery of training.
- Information coordination is fragmented within the sector.
- There are differences in the size and location of organisations in the water industry.

The Queensland Government, in partnership with the water sector, will encourage and facilitate water sector skills and job requirements to complement state and national frameworks.

Greater collaboration across regions is also encouraged. This will create an innovative water sector better able to create value solutions through economies of scale and efficiencies. This approach has the strong support of many local governments and the Local Government Association of Queensland, which see benefits in collaborations such as Queensland Water Regional Alliance Program (QWRAP) and the Cairns, Townsville and Mackay Water Alliance.

CASE STUDY

MACKAY REGIONAL COUNCIL

The Mackay Regional Council has adopted a best practice approach to reviewing its capital expenditure program by establishing a water and sewerage capital advisory committee.

The committee of external experts provides an independent perspective on capital projects, including the effects and benefits of proposed capital investments from community and commercial perspectives, as well as a strategic review of project planning and execution.



JINARAJ, 58

Jinaraj is passionate about making sure the water sector, particularly in regional areas, delivers the right training for the right people to develop the right skills.

"LGAQ strongly urges the government to further politically and financially support the extension of QWRAP beyond the initial investigatory phase, as well as the expansion of QWRAP into other regional areas." *Local Government Association of Queensland*

Action 5.1

Extend QWRAP to build regional collaboration

QWRAP is a local government-led initiative to extend regional collaboration and suggest possible models for improved urban water services outside of South East Queensland.

Four pilot trials, led by *qldwater* and the Local Government Association of Queensland, are under way: Remote Area Planning and Development Board, Far North Queensland Regional Organisation of Councils, Wide Bay Burnett Regional Organisation of Councils and Whitsunday Regional Organisation of Councils.

To support regional collaboration, other parts of Queensland will be encouraged to adopt the successful outcomes of QWRAP.

Action 5.2

Promote and support service provider-led regional capital advisory boards

The success and approach of the Mackay Water and Sewerage Capital Advisory Committee will be evaluated to determine if it can be extended to other councils, or adopted as a regional model.

In the long term, QWRAP will look to incorporate regional external capital advisory boards. This will support smaller councils where the scale of capital works does not support the overheads of individual boards. Over time, this approach will help to create a culture of region-wide capital planning where providers operate at a scale that delivers services and price benefits to customers while building and maintaining assets.



Action 5.3 Create competency-based frameworks

There are opportunities to implement common industry-based competencies across Queensland's water sector through the National Certification for Operators of Drinking Water Treatment Facilities Framework. This will help to address the practical and cost challenges of training faced by rural, remote and small drinking water service providers. It will ensure there are appropriate training providers available.

The National Water Industry Occupation and Competency Framework, developed by Government Skills Australia, will define the competency requirements for specific occupations within the water sector (such as processing and treatment, networks, asset management and quality management). The water sector, in partnership with governments, will continue to encourage and facilitate this important national work wherever possible.

JOHN, 70

John's worked in the water sector for more than 40 years. He supports the strategy's goal to recognise a professional water sector.

Action 5.4 Develop business skills programs to support service providers

Industry-led skills enhancement and business skills programs will be developed to support service providers.

The future workforce of the water sector will need a wide range of skills and knowledge beyond its traditional base, including information management, data analysis, economics, community engagement and general business skills.

Queensland's reformed vocational education and training sector will ensure training is more accessible and matches employment needs. Within the water sector, industry and government will work together to identify low-cost training solutions such as mentoring programs, short-term staff rotation programs and potential online skills development courses.

QWRAP PILOT COLLABORATIONS

Far North Queensland Regional Organisation of Councils

Cairns Regional Council
Cassowary Coast Regional Council
Cook Shire Council
Croydon Shire Council
Douglas Shire Council
Etheridge Shire Council
Mareeba Shire Council
Tablelands Regional Council

The Whitsunday Regional Organisation of Councils

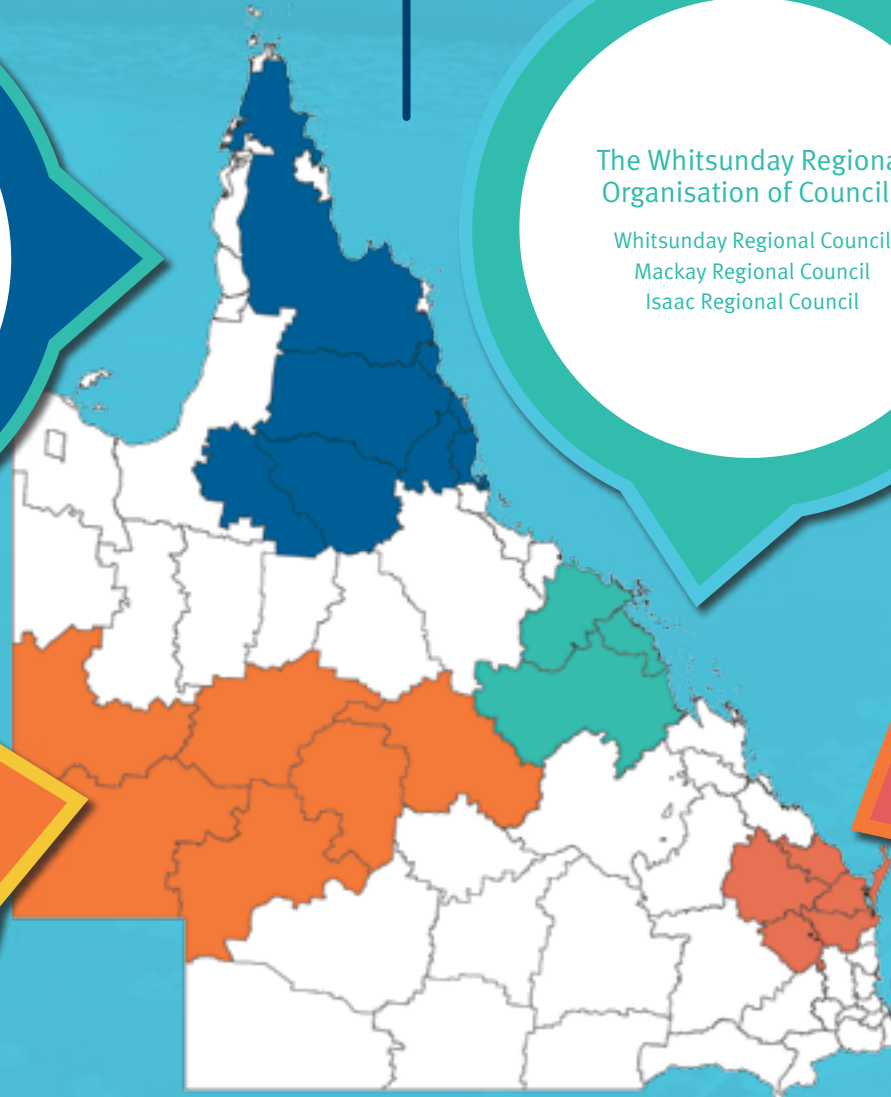
Whitsunday Regional Council
Mackay Regional Council
Isaac Regional Council

Wide Bay Burnett Regional Organisation of Councils

Bundaberg Regional Council
Fraser Coast Regional Council
Gympie Regional Council
North Burnett Regional Council
South Burnett Regional Council

Remote Area Planning and Development Board

Barcaldine Regional Council
Barcoo Shire Council
Boulia Shire Council
Diamantina Shire Council
Longreach Regional Council
Winton Shire Council



GOVERNMENT AND SERVICE PROVIDERS

STRATEGIC PRIORITY #6

Smart regulation and attracting private sector investment

.....
Performance-based regulation will provide a level playing field for service providers, transparent information and consumer protection for the community, mobilise the private sector and reward innovation.
.....

ACTIONS TOWARD 2044

.....

Start: 2015

Delivery partners

State government, Local Government Association of Queensland, *qldwater*, service providers, local government, private sector, regulators, water users, industry, agriculture, mining and resources industry, Queensland Competition Authority

In the next five years, we will:

- **reduce red tape and promote transparency and accountability**
(Action 6.1—Develop key performance-based indicator reporting and benchmark framework)
- **encourage greater use of recycled water through risk-based regulation**
(Action 6.2—Streamline recycled water regulation)
- **use a coordinated approach to support catchment based, total water cycle solutions**
(Action 6.3—Review regulations to support catchment based, total water cycle solutions).

MAKING THE RULES SIMPLER AND CLEARER

Queensland's water sector is predominantly regulated by state government legislation.

The Water Supply (Safety and Reliability) Act 2008, Public Health Act 2005 and Environmental Protection Act 1994 regulate water supply and sewerage services, drinking water quality, and sewage treatment and disposal. These focus on a safe and reliable water supply and protecting public health and the environment. Water allocation, planning and trading is covered by the Water Act 2000. Service providers, which are predominantly local governments, are also governed by the Local Government Act 2009 or the South-East Queensland Water (Distribution and Retail Restructuring) Act 2009.

GOVERNMENT AND SERVICE PROVIDERS **STRATEGIC PRIORITY #6**

Over time, the regulatory burden placed on service providers has increased with little regard for existing regulatory outcomes or on the ability of the providers to comply. For many years, the water sector has said the current way of regulating service activities is not working.

The Queensland Government is committed to reducing red tape by 20 per cent by 2018. To cut red tape in the water sector, the government will create a smarter, outcomes-focused regulatory framework. Service providers will be responsible for achieving these outcomes in the way that best suits their communities and will openly demonstrate their performance to government and customers. This new framework will allow providers to transparently balance competing public interests, including water security, water quality and environmental protection. It also allows the government to change to a regulatory oversight role.

DARCY, 13

Darcy strongly believes in fairness. She thinks simpler rules, stronger compliance and better community knowledge will all help to make water safe, accessible and more affordable for all Queenslanders.



CASE STUDY

REWARDING INNOVATION

For its work in introducing sustainability in Brisbane's Southbank precinct, Business South Bank was a Premier's Sustainability Award Winner in 2013.

The Southbank precinct has achieved significant savings in potable water use. Through its Rain Bank facility, the precinct can harvest and recycle up to 77 megalitres of storm water to irrigate the parklands.

This project demonstrates how collaborative effort between local, state and federal governments can lead to innovative solutions.

Action 6.1

Develop key performance-based indicator reporting and benchmark framework

New key performance-based indicators and a benchmark reporting framework will remove the need for most water management plans, replacing them with annual performance reporting. This is a fundamental shift that will enable service providers to monitor and benchmark their own progress against key performance indicators.

Under the changes, service providers will engage more closely with their customers on service decisions. This will ensure greater accountability for service providers and give customers greater transparency.

Action 6.2

Streamline recycled water regulation

The Queensland Government will remove the need for lower risk recycled water schemes to submit a recycled water management plan and will replace it with registration. Higher risk recycled water schemes, such as dual reticulation, will continue to be tightly regulated. Recycled water will not be used for drinking water.

Action 6.3

Review regulations to support catchment-based, total water cycle solutions

The Queensland Government will review the regulatory framework to support total water cycle solutions and streamline reporting and administration for service providers. This will help to support a whole-of-catchment approach, reduce overlap and better coordinate water sector regulations.

During this review, there is also scope to simplify operational regulation by clarifying the roles and responsibilities of different regulators and ensuring only one regulator leads on any given issue.



MARK, 29

Mark is looking forward to better outcomes for the water sector and water customers through smarter regulation.

INNOVATION

STRATEGIC PRIORITY #7

Innovative technology and infrastructure

.....
We will develop our knowledge and skills, and exploit these through innovation and technology to improve the environment and support community-led solutions.
.....

ACTIONS TOWARD 2044

.....

Start: 2014

Delivery partners

State government, service providers, water users, industry, agriculture, private investors and innovators, research organisations

In the next five years, we will:

- create an environment that fosters innovation, encourages Queensland-specific solutions and showcases best practice
(Action 7.1—Create an industry-led innovation panel)
- remove barriers to innovation
(Action 7.2—Review water legislation to remove barriers to innovation).

CHAMPIONING INNOVATION

Innovation will be critical to ensure the water sector and Queensland communities are equipped to manage future population, economic and environmental challenges.

Queensland’s significant population growth in the next 30 years will see our urban centres building up rather than out. This shift will drive better understanding and control of water use and improve our reuse of water. The quality and quantity of wastewater entering our sewerage systems will also change. Less will be discharged and its quality will be improved.

The great diversity in Queensland’s water sector means there is no ‘one size fits all’ solution. An industry-led water innovation panel will help the sector find and apply the right technologies and guide appropriate research into the challenges facing the sector during the next 30 years.

Worldwide, many organisations are researching and investing in emerging technologies for water supply and sewage treatment.

CASE STUDY

CENTRAL PARK: SYDNEY

Central Park is a large, mixed-use urban renewal project that delivers savings and drought-resistant water supply to 20 000 customers.

Based on the site of a former brewery in Chippendale, water and wastewater services are delivered via a privately designed and conducted local network operated by Central Park Water. Central Park Water is a private utility owned by Flow Systems and is licensed to provide drinking water, recycled water and wastewater services.

The network design emphasises sustainability and features less reliance on drinking water through harvesting, treatment and reuse of wastewater throughout the site. Due to the development footprint, developing the site's independent water and wastewater network was cheaper than connecting to the public utility. Its speed of construction meant quicker land releases and sales.

Customers receive more frequent water billing and more information about their water use. Their bills are lower because the water they use costs less than drinking water from Sydney Water.

Innovation for service providers

Two technologies are already used that could help service providers stay ahead of maintenance and supply.

The first is smart water grid technology, which combines sensors and software to monitor pressure, flow and noise in underground water mains. It provides real-time monitoring and condition assessment to target growing leaks before water mains break.

The second is fixed transmission main leak detection, which uses acoustic-based technology with GPS and cellular telemetry to monitor pipes. If a leak is detected, the provider is alerted to the size and location of the leak via email, text or through a web-based user interface.

Innovation for customers

Water and information technologies can combine to create a powerful medium for customers to manage their own water use.

One example is meters that allow real-time water use monitoring for households and businesses. They can let the user know where they use the most water, such as in the laundry or bathroom.

Web-based consumer portals can also provide information on usage and methods to improve efficiency.

Innovation for water and energy

Innovation can also play a role in providing quality water that maintains community health.

As our urban communities become denser, innovative and water-sensitive design will help shape our cities and towns as well as encourage water efficiency and minimise waste.

An example is Masdar City in Abu Dhabi, which is being built as a sustainable eco-city that accommodates rapid urbanisation while dramatically reducing energy, water and waste. Special facades, passive designs and multifaceted energy and water conservation systems have reduced the energy consumption of buildings by 50 per cent, cooling load by 40 per cent and water consumption by 54 per cent.

Other innovative water solutions being applied worldwide include filtering greywater through a membrane bioreactor before it is used as irrigation water and for micro-irrigation.

BETH, 12

Beth has grown up with technology. By the time she's moved out of home, she'll be monitoring her water use via regular text updates to her phone.





SCOTT, 36

Scott works in the water sector. He knows the sector is committed to innovation, environmental protection and finding better, cheaper, smarter ways to deliver water and sewerage services for our growing communities. He hopes the strategy will provide the building blocks needed to strengthen the sector to achieve these outcomes.

Innovation in farming

Advances in technology are helping to combat evaporation losses from water storages. These innovations are proving to be successful not only in reducing evaporation but, in some cases, also generating new energy supplies.

Research in Japan has found soil-less farming can deliver water savings of up to 90 per cent and increase food production by 50 per cent. Soil-less farming uses a biodegradable hydro-membrane that absorbs water and nutrients without leakage. The membrane prevents evaporation and leaching and also stops plants from excessively absorbing water.

Queensland-driven innovation

Queensland has many research bodies advancing innovation. These include the Cooperative Research Centre for Water Sensitive Cities, Advance Water Management Centre, SmartWater Research Centre, the Australian Water Recycling Centre of Excellence, the International WaterCentre and The University of Queensland's Dow Centre for Sustainable Engineering Innovation. Major water users, including the resources and agriculture sector, are also undertaking research to improve their water use patterns and reduce their environmental impacts.

However, despite the large amount of research being undertaken, there is little coordination between the innovator, end user and investor. An improved regulatory framework will promote innovation in water and sewerage services by fostering more effective collaboration and co-investment. This will enable new ideas, technologies and economic opportunities to emerge across the regions.

Action 7.1

Create an industry-led water innovation panel

An industry-led water innovation panel will advise the water sector on emerging technologies and their likely application in Queensland. The expert advice will enable service providers, researchers and implementers to work together on developing and applying Queensland-specific solutions that meet customer needs.

The panel will also be tasked with showcasing best practice, water-sensitive urban design that encourages water efficiency and minimises waste.

The panel will create a skill base in technologies that suits arid and tropical environments. In the future, this specialist knowledge will be used to help other regions and countries address the challenges of climate variability, water security, water quality and sewage disposal.

Sharing lessons and outcomes from these activities will encourage continued innovation. It will promote better planning, support investment in innovation, infrastructure and technology, and increase customer awareness of innovation and its benefits.

CASE STUDY

FITZGIBBON CHASE: BRISBANE NORTH

Fitzgibbon Chase, about 12 km north of the Brisbane CBD, aims to incorporate best practice, water-sensitive urban design principles and maximise water reuse in an urban setting.

When completed, the Fitzgibbon Stormwater Harvesting Project (FiSH) will supply 89 megalitres of treated stormwater a year to around 1200 homes. Diverting stormwater run-off via a channel system, FiSH will filter, disinfect and distribute treated stormwater through a third pipe (dual reticulation). The treated stormwater will only be used for non-potable activities such as watering gardens, flushing toilets, washing cars and cold-water laundry. FiSH is expected to provide around 84 per cent of the precinct's non-potable water needs.

A second aspect to Fitzgibbon Chase is the Potable Roof Water Project (PotaRoo) which, upon completion, will send 44 megalitres of treated roof water as drinking water into the town water network. Roof water will be collected from a number of communal tanks located throughout Fitzgibbon Chase, pumped to a central storage and water treatment plant for treatment and then into the town water network. The water will undergo a high level of treatment to achieve drinking water quality and will be carefully monitored.

HANS, 31

Hans knows innovation takes more than just good ideas. It also takes removing legislative barriers and encouraging demonstration projects. He's confident the strategy will deliver an environment where innovation can succeed.



Action 7.2

Review water legislation to remove barriers to innovation

The Queensland Government will review water legislation to remove barriers to innovation and to encourage the use of innovative approaches.

Changing the regulatory focus by implementing performance-based indicators and a benchmark reporting framework is the first step toward an innovation-friendly environment.

Demonstration projects will also assess the effectiveness of innovation in achieving regulatory outcomes. This is particularly relevant where market-based or non-infrastructure solutions might deliver environmental outcomes such as water quality offsets but further scientific, economic and environmental assessment is still needed to support its implementation.

Service providers wanting to trial new technologies and practices will continue to be subject to tailored regulation and will need to closely monitor key risks, including drinking water quality.

Development projects could also include catchment-wide solutions undertaken in partnerships between service providers, the private sector and research agencies. Results from these trials will be shared across the sector.

CASE STUDY

MAKING A DIFFERENCE

Remoteness has always driven innovation and collaboration across regional Queensland but increasing financial pressure has made these a necessity.

Tweaking how regional businesses work and think outside the square is resulting in better outcomes for customers, value for money and helping services to recover faster from climatic events.

North Burnett Regional Council

An overhaul of the lagoon sewage treatment plant in Biggenden has been undertaken, including rock-filtering wastewater before it is reused on the golf course or discharged into the environment.

This \$100 000, low-technology focused solution has meant construction of a new treatment plant has been deferred indefinitely. This has resulted in significant savings to the council and its customers.

Diamantina Shire Council

Water to businesses and homes in Bedourie is supplied by the Great Artesian Basin through free-flowing bores, at a temperature of around 45°C.

Responding to community wishes and to improve general safety, the council constructed cooling ponds that allow the water to travel through a pipe that sits in the pond. The pipe was designed like a toaster heating element, spanning the length of the pond. This innovative low-cost technology results in an 18–20°C decrease in water temperature. The strong water pressure from the bore allows the cooled water to travel to users without the need for additional pumps, reservoirs or heat exchangers. For this project, Diamantina Shire won the 2013 Institute of Public Works Engineering Australasia Queensland Division Excellence Awards—Innovative projects under \$1 million category.

Gympie Regional Council

When it comes to recovering quickly from flood events, this council is ahead of the game. The council has optimised its processes and procedures to help minimise service disruptions from floods, including installing removable switchboards at pump stations and developing an effective action plan. This means the time taken to be back online and post-flood recovery costs to the community are significantly lower than in regions where flooding is less common.

Carpentaria Shire Council

Normanton and Karumba bores have a high naturally occurring fluoride level, which meant this water source could not be used for drinking water purposes without significant filtration costs. To guarantee water security for the township and to meet legislative requirements for fluoridation, this bore water has been ‘shandied’ with surface water. This has meant potential improvements to oral health and increased water security.

Cairns Regional Council

A new system of bag filters is being trialled to manage cryptosporidium and giardia. Installed at the river intake, these filters help remove the organisms from the raw water. The new system, together with UV and chlorine disinfection, forms part of the council’s multiple barrier treatment process. While in its early days, monitoring has shown water supplied to homes, businesses and industries through the reticulation network has been free from these organisms. The system is showing early signs of promise as a technology that is cost-effective and fit for purpose.



ALIGNING WITH THE QUEENSLAND PLAN

The Queensland Plan will serve as a valuable compass for the state's future development.

More than 78 000 Queenslanders contributed their ideas to *The Queensland Plan*, which will establish a shared, long-term vision for Queensland to have the best opportunities, the brightest minds and a prosperous and resilient economy.

The Queensland Plan

<p>PEOPLE ‘We support the least advantaged’</p>	<p>COMMUNITY ‘In Queensland, nobody gets left behind’</p>
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REGIONS
‘Regions are strong and prosperous’

ECONOMY
‘We are the number one economy in Australia’

ENVIRONMENT
‘Our natural resources are managed effectively’

INFRASTRUCTURE
‘Our infrastructure fits our changing population and demographics’

GOVERNANCE
‘Government is more effective and efficient’

WaterQ: a 30-year strategy for Queensland's water sector

➤ **Strategic priority 1:** Customer empowerment and community education
Strategic priority 2: Equity and affordability ➤

➤ **Strategic priority 4:** Responsible and productive water management
Strategic priority 5: Skilled and sustainable water sector ➤

➤ **Strategic priority 3:** Efficient and productive use of water
Strategic priority 4: Responsible and productive water management
Strategic priority 5: Skilled and sustainable water sector ➤

➤ **Strategic priority 3:** Efficient and productive use of water
Strategic priority 4: Responsible and productive water management ➤

➤ **Strategic priority 3:** Efficient and productive use of water
Strategic priority 4: Responsible and productive water management
Strategic priority 7: Innovative technology and infrastructure ➤

➤ **Strategic priority 6:** Smart regulation and attracting private sector investment
Strategic priority 7: Innovative technology and infrastructure ➤

Strategic actions

- 1.1 Innovative tariff structures
- 1.2 Customer water plans
- 1.3 Engagement and information
- 2.2 Customer service standards
- 2.3 Water concessions
- 2.4 Dispute resolution

- 4.1 Transforming the water business
- 4.2 Regional water supply security assessments
- 4.3 Catchment management partnership program
- 5.1 Extend QWRAP to build regional collaboration
- 5.2 Promote and support service provider-led regional capital advisory boards

- 3.1 Rural Water Use Efficiency for Irrigation Futures program
- 4.1 Transforming the water business
- 4.2 Regional water supply security assessments
- 5.3 Create competency-based frameworks
- 5.4 Develop business skills program to support service providers

- 3.2 Promote benefits of combined energy and water efficiency
- 3.3 Showcase best practice
- 4.3 Catchment management partnership program

- 2.1 Investigate tenant billing
- 3.2 Promote benefits of combined energy and water efficiency
- 4.2 Regional water supply security assessments
- 7.1 Create an industry-led water innovation panel

- 6.1 Develop key performance-based indicator reporting and benchmark framework
- 6.2 Streamline recycled water regulation
- 6.3 Review regulations to support catchment-based, total water cycle solutions
- 7.2 Review water legislation to remove barriers to innovation

Queensland in 30 years' time

- Customers have a greater say and more product choice
- Greater community and stakeholder engagement in local decision-making

- Water is available when and where it is needed and at the right quality
- Greater preparedness for drought and floods

- Investment in innovative technology and people
- Reliable water and sewerage services delivered across Queensland

- A natural environment that is valued

- Better planning for water supply and demand

- Decision-making at a local level
- Outcome-based regulation
- Continuous improvement for service delivery

Great state. Great opportunity.



Queensland
Government