

# South East Queensland's Water Security Program 2016-2046



## Summary

The Water Security Program is Seqwater's plan to provide South East Queensland with drinking water over the next 30 years. This includes planning for extreme weather — both flood and drought. The Program is a requirement under the *Water Act 2000* and is an updated version of the plan published in 2015.

Seqwater is the sole bulk water supplier in the region and it is our job to deliver safe, secure and cost-effective water supply. We source, store, treat and supply water to 3.1 million people every day, including 55,000 people living in 16 off-grid communities.

Our bulk water supply system meets our region's current needs but in the future new sources will be required to meet the needs of our growing population, expected to reach 5.1 million by 2046.

## Planning for the future

We carefully plan for the future—balancing demand, supply and the operation of our water grid so we can provide *water for life*.

Water gives and sustains life and a clean, safe, supply supports healthy communities. Water is central to our enviable South East Queensland lifestyle and a reliable supply of quality water underpins our economy and regional prosperity.

Our research shows that, apart from a severe drought or a significant change in supply or demand, the water grid can supply the region with enough water until about 2040. After that we will need new water sources to meet growing demand.

Within this timeframe Seqwater will need to continue to invest in pipeline, pump stations and treatment plant improvements, primarily to better manage peaks in demand which occur during hot, dry weather. The capacity of South East Queensland's bulk water supply system is 1,347 million litres a day.

## The water grid

Seqwater's interconnected water grid was built in response to the water supply crisis of the Millennium Drought (2001-2009). It includes dams and weirs, conventional water treatment plants and the climate-resilient water sources of the Gold Coast Desalination Plant and Western Corridor Recycled Water Scheme. A network of about 600 km of bi-directional pipelines enables Seqwater to move water around the region.

In preparing version 2 of the Water Security Program, Seqwater has comprehensively examined demand, supply and the operation of our water grid—the three levers that work together to secure the region's water supply.

## Demand

- Demand is determined by both per person water use and by population.
- Seqwater carefully monitors demand for water in our region and works closely with South East Queensland's water service providers (Unitywater, Queensland Urban Utilities and the council-owned water businesses of Redland, Logan and City of Gold Coast) to forecast future demand.
- Our planning uses low, medium and high demand forecasts so that we are prepared for different growth scenarios.
- Demand for water in South East Queensland has been steadily rising and is forecast to reach 185 litres per person per day (L/p/day). This is still much less than was used prior to the Millennium Drought when usage was around 300 L/p/day.
- About 74% of all water consumed in South East Queensland is for residential use.
- Currently our region uses around 300,000 million litres a year. By 2046, with our increasing population, the forecast medium demand is around 525,000 million litres a year – an increase of around 75% over 30 years.

## Supply

- With all South East Queensland water grid assets available and operating (including the Western Corridor Recycled Water Scheme), our region's bulk water system can supply about 440,000 million litres a year.
- The next new source is expected to be required in the region's north, before 2040.
- New water source options have been identified but no decisions have been made. The options have been assessed at a strategic level and will be subject to further assessment and community feedback.
- Our Water Security Program aims to source and store sufficient raw water for our region's long-term needs as well as treat enough water to meet demand, including during consumption peaks which usually occur during periods of hot, dry weather.
- Within the planning period of the Water Security Program, some treatment plant upgrades will be required and additional treatment capacity will be required by 2035 in the central or southern region.

## Operation of the grid

- While we can move water around the region, drinking water is usually sourced and treated locally to minimise costs.
- In an emergency and during drought conditions, the water grid is managed to maximise resilience by operating our climate-resilient water sources and using the grid to move water around the region.
- Without the interconnectedness of the grid, the system could only supply about 355,000 million litres of water a year.
- By boosting the yield of the system by about 85,000 million litres a year, the grid helps delay the need for additional water supply infrastructure. Without the water grid, a new water source may have been required by 2020.

## Off-grid communities

- Seqwater provides bulk water to 16 off-grid communities.
- We have assessed each of the water supply schemes for the off-grid communities as part of the Water Security Program.
- Our assessments show that one community, Beaudesert, may need to be connected to the grid to provide increased water security in the future.

## Catchment to tap

- Most of our water comes from rainfall run-off flowing into creeks, rivers and our dams. This occurs over 1.2 million hectares of catchment land.
- Effective management of the water supply system requires integrated planning from catchment to tap.
- About 70% of all South East Queensland land is drinking water catchment but Seqwater owns only 4.4% of that catchment (and a quarter of that is under water).
- The condition of the catchment impacts how much water can be stored, the quality of the water available and the cost of water treatment.
- Seqwater will investigate green infrastructure solutions to help support built infrastructure and improve the quantity and quality of water the system can provide. We will also design treatment plants to manage the risks of open catchments.
- Our water supply catchments are degraded and if they further deteriorate, Seqwater will need to invest more in future treatment plant upgrades to make sure we keep producing quality drinking water.

## Climate of extremes

- Since the Millennium, our region has experienced several large floods and a lengthy drought. We need to be ready to respond—operating the water grid for resilience and as a community adjusting our water use as required.
- Our revised drought response plans aims to minimise costs and improve water security during drought.
- A key change to the drought response is the introduction of a drought readiness phase to help better prepare the region for the prospect of drought.
- Drought response actions are linked to the combined volumes of our region's water storages.
- Water is a precious resource and South East Queenslanders are encouraged to be water efficient all the time. During drought this becomes even more important. Drought readiness messaging will start when storage levels reach 70%, voluntary water conservation will commence at 60%, water restrictions at 50% and all assets including the Gold Coast Desalination Plant and the Western Corridor Recycled Water Scheme will be operational by 40%.

## Trade-offs

- New water sources will inevitably be needed in the future and no single option, such as a new dam, desalination plant, rainwater tank or stormwater harvesting scheme, on their own, is likely to meet the region's needs. We will need a combination of options.
- Each option and combination of options has advantages and disadvantages that we need to consider. In the future we will need to make trade-offs to make the right choices for South East Queensland.

## Liveability

Water contributes to the liveability of our region. We can achieve water security in different ways, with different liveability outcomes for our communities, depending on the trade-offs we decide to make. Seqwater is committed to listening to the views and values of the people we serve and working towards a shared vision of our water future

## Future decisions

Investing in water infrastructure, particularly new sources of water, is an intergenerational decision—the cost, benefits and implications will be felt by generations to come. South East Queensland’s Water Security Program helps us to make the right decisions at the right time.

Our Water Security Program is adaptive. It does not propose one water security solution with a set timeframe. Rather, it identifies ways we can respond to changing influences and sets triggers for implementing options or reviewing and changing our response. While our responses are planned in advance, investment decisions will be based on conditions at the time and depend on what options have been previously implemented.