

Chapter 2

South East Queensland

2.1 Chapter 2 provides a brief outline of the elements influencing the supply of, and demand for, water in South East Queensland (SEQ). This chapter also provides the demand projections utilised by the Queensland Government and outlines some of the major reports and research undertaken by the Queensland Government. At the conclusion of this chapter, the initiatives which are being implemented or have been identified for consideration to address water shortages and secure future supply are listed, and the government agencies and authorities who have roles and responsibilities in developing infrastructure and the delivery of water supplies to SEQ are identified.

Introduction

2.2 SEQ as a region is experiencing the compound effects of the worst drought in more than 100 years, a booming residential population and the prospect of continuing irregular rainfall due to natural climate variability and long-term climate change.¹ Existing water supplies previously thought to be long-term and secure are currently at or have recently been at record lows. For example, inflows to the major dam systems in 2006, the Wivenhoe, Somerset and North Pine, are the lowest on record and these systems were at 20.5 per cent of capacity in April 2007.² The drought has exposed the vulnerability of the region's water supplies and the fact that SEQ is experiencing huge population growth to the amount of 50,000–60,000 people per annum is increasing the water demand in an already stretched system.³

2.3 Level 5 water restrictions were introduced in SEQ on 10 April 2007, as dam capacities dropped below 20 per cent. Water restrictions apply to households as well as businesses, industries and government agencies, and these restrictions now also address water use by some power stations and licensed irrigators. The Queensland Government will also focus on household water efficiency through a high volume water usage audit.⁴

2.4 The Queensland Water Commission have stated that SEQ residential water consumption has already reduced from a pre-restrictions level of approximately 300 litres per person per day to approximately 180 litres per person per day under level 4

1 Queensland Government, *Submission 166*, p. 6.

2 *Submission 166*, p. 9.

3 *Submission 166*, p. 32; for information on population projections, see pp 41–42.

4 Queensland Water Commission, *Draft for Consultation The Framework for a South East Queensland Regional Demand Management Program 2007–2009*, p. 10.

<http://www.qwc.qld.gov.au/myfiles/uploads/Regional%20Demand%20Management%20Framework%20Consultation%20Paper.pdf> (accessed 19 July 07).

water restrictions.⁵ The 'Target 140 campaign', a coordinated education and awareness program, focusing on achieving a regional average target of 140 litres per person per day has been implemented. The campaign has the potential to deliver significant water savings and influence a more sustainable post-drought level of residential water consumption.⁶ Mr Ken Smith, Director General, Department of Infrastructure, Queensland indicated that people living in Queensland have responded well to the current water crisis and requests for a decrease in residential water usage:

The community are responding marvellously. To get the level down, we had a target of 140 litres. People have got down to 147 litres, which...is the lowest level of average utilisation per person of any urban city in Australia—probably around the world, really.⁷

Existing water supplies

2.5 SEQ has 19 major urban surface water storages with a diverse ownership of 12 separate proprietors including: SEQWater, Sunwater, local governments and a local government cooperative.⁸ The Queensland Government is working cooperatively with local governments to implement drought contingency projects and ensure the security of the water supply. Water Resource Plans (WRP) have recently been finalised for catchments in the SEQ region. These plans define the balance between water to be available for consumption and water to be available for environmental purposes.⁹ The Queensland Government explained the importance of WRPs when considering alternative water supply options, and stated that:

WRPs are developed through detailed technical and scientific assessment as well as extensive community consultation to determine the right balance between competing requirements for water...When comparing various supply sources, the restrictions imposed on supply sources by WRPs must be considered. Hence, it may be that a particular water source may be favourable in an economic and financial sense but cannot demonstrate compliance with the relevant WRP.¹⁰

2.6 The Queensland Government indicated that while the total supply from the major urban water sources in SEQ is 636,000 megalitres per annum (ML/a), not all of

5 Queensland Water Commission, *Draft for Consultation The Framework for a South East Queensland Regional Demand Management Program 2007–2009*, p. 11.
<http://www.qwc.qld.gov.au/myfiles/uploads/Regional%20Demand%20Management%20Framework%20Consultation%20Paper.pdf> (accessed 19 July 07).

6 Queensland Water Commission, *Draft for Consultation The Framework for a South East Queensland Regional Demand Management Program 2007–2009*, pp 11–12.
<http://www.qwc.qld.gov.au/myfiles/uploads/Regional%20Demand%20Management%20Framework%20Consultation%20Paper.pdf> (accessed 19 July 07).

7 *Committee Hansard*, 04 June 07, p. 98.

8 For full details of major urban water sources in SEQ see, *Submission 166*, p. 68.

9 *Submission 166*, p. 47.

10 *Submission 166*, p. 76.

this supply is actually available for consumption in SEQ as historical no failure yield amounts for some water sources have been downgraded due to the drought. The total available supply in the region is only 528,259 ML/a.¹¹

Water demand projections

2.7 The Queensland Government provided extensive information detailing urban and industrial water demand projections and highlighted that numerous assumptions underpin these forecasts, such as the accuracy of population projections, the assumed uptake or penetration rates of non-mandatory water efficiency opportunities and the achievement of predicted rainwater tank yields.¹² The Queensland Government stated that:

Unrestricted existing urban and industrial water demands are about 480,000 ML/a. The early implementation of water use efficiency and customer side source substitution measures is likely to reduce SEQ urban and industrial demand projections by about 30,000 ML/a. SEQ water demands are anticipated to be about 520,000 ML/a in 2026 and 710,000 ML/a in 2051. If high series population projections eventuate, the equivalent 2026 and 2051 demands are 590,000 and 1,100,000 ML/a.¹³

2.8 On the basis of the supply/demand gap analysis undertaken by the Queensland Government between 540,000 and 720,000 ML/a will need to be provided to satisfy projected 'business as usual' demand by around 2051 and between 150,000 and 200,000 ML/a of contingency will need to be identified and pre-planned.¹⁴

2.9 The committee received a report titled *Review of Water Supply-Demand Options for South East Queensland – Final Report* (the Review Report) which questioned the Queensland Government's demand projection figures.¹⁵ The Review Report made the following comments:

The assumptions [regarding the level of restrictions (frequency, depth, duration)] now being used are very conservative, and differ significantly from standards that apply in comparable cities. In addition there is no clear evidence that these changes have been based on any surveys or community engagement processes to determine what is deemed acceptable to the community.

...

11 *Submission 166*, pp 66–67.

12 For further information on the water demand forecasting see *Submission 166*, pp 48–64.

13 *Submission 166*, pp 49 and 89–92.

14 *Submission 166*, p. 79. For full detail on the supply/demand gap analysis, see *Submission 166*, pp 86–90.

15 A.Turner, G.Hausler, N. Carrard, A. Kazaglis, S. White, A. Hughes, T. Johnson. (2007) *Review of Water Supply-Demand Options for South East Queensland*, Institute for Sustainable Futures, Sydney and Cardno, Brisbane, February.

The figure of 300 litres per capita per day being used for [business-as-usual] projections is significantly higher than the demand in comparable eastern seaboard capital cities. This projection being used to forecast to 2050 is therefore likely to be a significant overestimate, as it does not adequately take into consideration expected downward pressure on water demand due to changes in land use (urban consolidation and the shift to more flats and units with the associated reduction in lawn and garden area) and the improving efficiency of water using equipment such as dual flush toilets and washing machines.

The Queensland Government estimate of the supply-demand gap is considered to be extreme and unjustified. The combination of these projections of reduced yield and elevated demand has implications for the supply-demand balance in 2050 of several hundred billion litres per year (GL/a).¹⁶

2.10 Mr John Bradley, CEO, Queensland Water Commission responded to the comments made in the Review Report on demand projections and stated:

There are some significant errors in that analysis which raise concerns about the conclusions that it draws, particularly around its assessment of base line demand. They questioned the use within the SEQ regional water supply strategy study of 300 litres per person per day and said that that is excessive. They said that on the basis of interstate comparisons rather than a substantiated analysis of demand. What we have done within the SEQ regional water supply strategy over a long period is the largest study ever undertaken of demand management trends, using very sophisticated analysis undertaken by Montgomery Watson Hauser to assess our demand trends and the achievable savings we can make in demand management. It is because of this difference in opinion on demand management that Professor White came to a very different conclusion.¹⁷

Water allocations and the price of water

2.11 The Queensland Government do not have pricing signals in their water market. When questioned on their view of pricing signals, Mr Ken Smith, Department of Infrastructure, Queensland, commented on a report released by the Queensland Water Commission on pricing issues and stated that in that report 'there is a proposal with respect to both the wholesale price of water and the impact on the retail price of water'.¹⁸ Mr Bradley also commented that 'the government has made an early response to the commission's report indicating that they would be prepared to accept lower rates of

16 *Review of Water Supply-Demand Options for South East Queensland*, p. i; for further information on water demand projections see pp 8–12 and pp 69–71; See also Professor Stuart White, Institute of Sustainable Futures, *Committee Hansard*, 17 April 07, pp 50–53 and 58–59.

17 *Committee Hansard*, 18 April 07, p. 93.

18 *Committee Hansard*, 18 April 07, p. 88.

return on the drought infrastructure in order to minimise price shock for the community'.¹⁹

2.12 The Queensland Government provided some evidence on the number of water licences allocated in SEQ incorporating both sleepers and dozers (unused or little used allocations). In their modelling, the Queensland Government have assumed that all licences are being utilised and have identified that the next step would be further consultations to quantify actual use. Mr Graeme Newton, CEO, Queensland Water Infrastructure Pty Ltd (QWI), commented 'the reality is that they [sleepers' and dozers' licences] are not all being used, but the quantum is not yet defined because it is actually quite a thorough consultation process'.²⁰

Queensland Government

2.13 The Queensland Government has over many years conducted studies and developed strategies and plans incorporating the region of SEQ, which identify initiatives to secure water supplies for the region. This section provides comments on studies, reports and initiatives that have been discussed at length in evidence and have been identified as particularly relevant to the water issues experienced in SEQ. Further information can be found in the Queensland Government's submission and supporting documents provided to the inquiry.

Government studies and reports

2.14 The Queensland Government provided a number of reports and additional information to the committee as evidence. The full reference details for the reports referred to in this report are available in Appendix 3.

2.15 Two past reports, one titled *SEQ Sources Study* published in 1991 and the second report titled *The SEQ and Water and Wastewater Management and Infrastructure Study – Final Report for Phase 1 – Water Sources and Infrastructure Needs – April 1999* noted that the Wyaralong Dam and the Borumba Dam sites have been identified as alternative supply sources and have been considered for development at various times.

2.16 A report produced in 1994 titled *The Water Supply Sources for the Sunshine Coast and the Mary River Valley* identified that the Traveston Crossing Dam on the Mary River did not warrant further investigation as a water supply source. The report stated the following reasons '[e]xtensive alluvial flood plain on right bank. Cost for dam updated from 1977 is \$125 million. Damsite considered unsuitable because of high

19 *Committee Hansard*, 18 April 07, p. 89.

20 *Committee Hansard*, 04 June 07, p. 113.

capital cost, inundation of prime agricultural land and displacement of rural population'.²¹

2.17 The *SEQ Regional Water Supply Strategy – Stage 2 Interim Report* was released in January 2006 and outlined the approach needed to ensure water supplies meet the short and medium-term water needs. It also provided details of short-term priority projects and contingency planning initiatives to be commenced in the period 2005–2009, and provides a commitment to medium-term (2010–2020) and possible long-term (2021–2051) initiatives. Mr David Gibson, Member for Gympie, commented on the absence of consideration of the Traveston Crossing Dam initiative in this report:

...with regard to the South East Queensland Regional Water Supply Strategy—the government was very clearly and very openly talking about a weir on the Mary River at Coles Crossing... They reinforced that on 7 April with another ministerial statement saying that they would proceed with that weir. On 20 April we have both the minister at the time and the Premier committing to the South East Queensland Regional Water Supply Strategy which talks about a weir. Seven days later, they talked about a dam—a mega dam is how they addressed it—on the Mary River. The people of this electorate were understandably very confused and incredibly frustrated at the information that became available. Why was there a change from a two-year report that the government commissioned to determine what were the best water supply strategies to then suddenly—within seven days—appear to disregard that report?²²

2.18 The report titled *SEQ Regional Water Supply Strategy - Desk Top Review of Identified Dam and Weir Sites - Report to the Bulk Supply Infrastructure Task Group* (the GHD report) was released in June 2006. This report was commissioned by the Queensland Government and prepared by consultants GHD Pty Ltd (GHD) who were asked to conduct a desktop review of existing reports and data and publicly available information regarding dam and weir sites that had previously been identified in the region.²³ In preparing this report, GHD were specifically asked to:

- make recommendations regarding those sites that did not warrant further consideration; and
- identify any shortfalls in available information that had the potential to impact on the viability of a particular development.

21 Department of Primary Industries (DPI) Water Resources, *Water Supply Sources for the Sunshine Coast and the Mary River Valley*, December, 1994, p. 53.

22 *Committee Hansard*, 17 April 07, p. 30.

23 For further information, see *Submission 166*, pp 43–47.

Legislative amendments

2.19 The *Water Amendment Regulation (No.6) 2006* (Qld) was made as a response to the worst drought on record and aimed to expedite the coordinated delivery of initiatives and projects. The Queensland Government explained the intention of the amendment:

To ensure adequate supplies are maintained, the Queensland Government is working with QWC, SEQWater, SunWater and SEQ councils to develop and implement the large range of emergency projects and other drought contingency measures detailed in the *Water Amendment Regulation (No. 6) 2006*. These emergency projects and other measures (such as water restrictions) are collectively designed to ensure ongoing water supply in the event that the current drought continues.

The *Water Amendment Regulation (No.6) 2006* provides a coordinated set of actions to be undertaken by a number of State and local government entities and provides details on project measures, outcomes, timelines and target water volumes to be achieved.

Service providers develop monthly progress reports on their projects for publication on the QWC website.²⁴

2.20 The Queensland Government confirmed that a range of projects that QWI are responsible for are included in the regulation. Mr Ken Smith stated '[a]s you know, it was not just Traveston; it was a range of projects that QWI are responsible for...All the ones we are talking about were in it: Wyaralong, Cedar Grove Weir. There is a range of projects that were part of that'.²⁵

2.21 Many witnesses and submitters questioned whether the Traveston Crossing Dam initiative should be included in this regulation, given that Stage 1 of the initiative will not be operating until 2011.²⁶ Professor Stuart White, Director of the Institute of Sustainable Futures and one of the authors of the Review Report commented:

...the Traveston Dam is not designed to solve the current drought. This is an extremely important point...Unfortunately I am not sure that that understanding is shared within the wider south-east Queensland community, and it is extremely important in assessing this dam. This dam must be assessed on its contribution to the medium to long-term supply demand balance for south-east Queensland, not on its ability to solve the current drought. This is despite the fact that it is included in the emergency legislation as if it were part of that drought response package, which, as many of you realise, is quite anomalous.²⁷

24 *Submission 166*, p. 46.

25 *Committee Hansard*, 18 April 07, p. 135.

26 For example see, *Submission 182*; *Submission 186*; *Submission 192*.

27 *Committee Hansard*, 17 April 07, p. 45.

2.22 The Queensland Government explained the reasoning for including the Traveston Crossing Dam in the regulation, and stated:

The reason for including Traveston Crossing Dam and other projects such as Wyaralong Dam and Hinze Dam Stage 3 in the Regulation was to include a comprehensive enunciation of the short and medium term priorities of the Queensland Government in achieving water security in SEQ and to indicate the responsibilities of all water service providers and the State.²⁸

Demand and supply initiatives

2.23 The Queensland Government has stated that 'a single solution to the long-term water needs of SEQ does not exist' and is therefore instituting a Water Grid which adopts a multi-faceted approach to meet future water demands. This approach includes demand site management and the diversification of supply sources, comprising dams and weirs, desalination, recycling and ground water sources.

2.24 A range of demand management initiatives will be implemented by the Queensland Government to target business and industry as well as residents with rebate schemes and incentive programs. The offer of subsidies to local governments has been expanded to accelerate the implementation of pressure and leakage management programs.²⁹

2.25 The Queensland Government identified the main bulk supply options to meet the projected demands in SEQ as:

- additional ground water supplies;
- desalination;
- recycling; and
- new dams and weirs.³⁰

2.26 The diversification of supply sources combined with a significant infrastructure investment program provide the following water supply initiatives:

- Western Corridor Recycled Water Project;
- SEQ (Gold Coast) Desalination Project;
- Southern Regional Water Pipeline;
- Northern Pipeline Interconnector;
- Eastern Pipeline Interconnector;
- Cedar Grove Weir;

28 Queensland Government, answer to question on notice, 30 April 2007, (received 31 May 2007).

29 For further information on recent urban demand initiatives, see *Submission 166*, pp 59–61.

30 For further detail on the bulk supply options, see *Submission 166*, pp 69–77.

-
- Bromelton Offstream Storage;
 - Wyaralong Dam; and
 - Traveston Crossing Dam.

2.27 More detailed information on each of the initiatives listed above is available at Appendix 4. The majority of evidence the committee received was in relation to the Traveston Crossing Dam and the Wyaralong Dam, and these two initiatives are discussed in further detail in chapters 3, 4, and 5.

State government roles and responsibilities

2.28 The Queensland Government, through different agencies and authorities, performs a number of roles and responsibilities in progressing proposed infrastructure and water projects. Full details of relevant agencies and authorities are available in the Queensland Government's submission.³¹ However, a brief outline of the major state government agencies and authorities is given below:

- **Department of Natural Resources and Water (DNRW)** - administers the *Water Act 2000* (Qld), which puts in place the overall legislative and institutional framework for the sustainable planning, allocation and use of water. DNRW also provides ongoing advisory input and audits the results of the substantial hydrological modelling exercises associated with the Environmental Impact Statement (EIS) and the subsequent granting of a Resource Operations Licence (ROL).
- **Queensland Water Corporation (QWC)** - an independent, statutory authority responsible for planning and achieving safe, secure and sustainable water supplies in SEQ and other designated regions. The QWC is currently completing a long-term water strategy to guide the region's water initiatives in conjunction with state and local governments.
- **Coordinator General (CG)** - the manager, coordinator and key state decision maker in relation to the impact assessment process of any major water storage proposal.
- **Environment Protection Agency (EPA)** - responsible for protecting Queensland's natural and cultural heritage, and promoting sustainable use of its natural capital and ensuring a clean environment. The EPA plays a key role in assisting the Coordinator General to assess the impacts of a water storage proposal and develop strategies to suitably mitigate such impacts on identified environmental values.
- **Department of Primary Industries and Fisheries (DPIF)** - strives to ensure Queensland's primary industries and fisheries support sustainable production systems and use best practice in water management and water allocation, vegetation and pest management, and chemical use.

31 For further detail, see *Submission* 166, pp 155–169.

- **Community Futures Taskforce (CFTF)** - established to work with communities affected by the proposed dams. The CFTF is chaired by Major-General Peter Arnison, former Governor of Queensland. Comprising relevant state agencies and representatives of councils, the CFTF is developing strategies to maximise the medium to long-term opportunities presented by the development.
- **Queensland Water Infrastructure (QWI)** - a company incorporated on 28 June 2006 pursuant to the *Corporations Act 2001* (Cth) and whose shares are wholly owned by the State of Queensland. QWI is the proponent for the proposed Traveston Crossing Dam project, the Wyaralong Dam, the Cedar Grove Weir and the Bromelton Offstream Storage. QWI was established by the Queensland Government with the objectives of investigating, obtaining all relevant approvals and constructing and operating a number of water infrastructure projects in SEQ.

Conclusion

2.29 The region of SEQ is facing challenges in balancing the demand for, and supply of water for urban, industrial and irrigation purposes. Through much analysis and research, the Queensland Government have identified a range of initiatives for implementation; some of which are currently in place and others which represent long-term solutions. The fact that SEQ is experiencing a large rate of population growth during an extended time of drought and rainfall variability means that the Queensland Government needs to consider carefully the implications of these planned initiatives, both present and future, when endeavouring to meet the water supply requirements of the SEQ region.