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Review of Water Supply-Demand Options for South East Queensland

Draft Report

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EXECUTIVE SUMMARY

This Independent Review aims to assess the Queensland Government's proposed strategy for meeting the long-term water supply-demand balance for South East Queensland, of which the Traveston Crossing scheme is a major and controversial component. The Review, conducted by a team from the Institute for Sustainable Futures at the University of Technology, Sydney and Cardno, concludes that a diverse portfolio of options can ensure supply security for South East Queensland (SEQ) well into the future, certainly to 2050. Such options include: increasing water supply availability (supply-side options); decreasing the demand for water (demand-side options); and meeting water supply needs during deep droughts (drought response options).

A number of the elements of such a portfolio are already being implemented as part of the current Queensland Government strategy. With the extension and addition of low unit cost demand-side options and supply-side drought response 'readiness' options, a clear conclusion of this Study is that the proposed dam at Traveston Crossing on the Mary River is neither necessary nor desirable as a part of the portfolio for ensuring supply security to 2050. The increase in supply from this proposed dam will not assist in the short-term during the current severe drought, and is not needed for supply-demand balance in the longer term. In addition, the proposed dam at Traveston Crossing on the Mary River represents a high total cost, high unit cost, high risk and high environmental and social impact option. Hence using key decision-making criteria the Traveston Crossing scheme should not be considered for implementation.

The objective of urban water planning is to ensure that supply availability (system yield) meets the demand for the planning period at the least economic, environmental and social cost. In the current planning for the SEQ system, estimates of system yield for SEQ have been significantly reduced from 635 GL/a to 450 GL/a, primarily as a result of changed assumptions regarding the level of restrictions (frequency, depth) that are deemed acceptable to the community. These assumptions are very conservative, and differ considerably from standards that apply in comparable cities. There is no evidence that these changes have been based on any surveys or community engagement processes.

The projections of business-as-usual (or reference case) water demand assume a residential demand (not including non residential and non revenue water) of 300 litres per capita per day for a period extending to 2050. This is significantly higher than the demand in comparable eastern seaboard capital cities. This projection is likely to be a significant overestimate, and does not adequately take into consideration expected downward pressure on water demand due to changes in land use (urban consolidation with the associated reduction in lawn and garden area) and the improving efficiency of water using equipment such as dual flush toilets.

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). This difference in the supply-demand balance estimate is significantly greater than the yield of the proposed dam at Traveston Crossing on the Mary River. Nonetheless, for the analysis in this Study, we have used the yield and demand projections as stated in SEQ planning documents to enable direct comparison with publicly available Queensland Government data.

The suite of supply and demand-side options currently being implemented by the Queensland Government to address the current drought, not including a dam at Traveston Crossing on the Mary River will mean that the long-term supply-demand balance will be met until around 2030, even using these extreme projections of yield and demand. These options range from groundwater, source renewal, desalination, demand management to effluent reuse.

To meet the supply-demand balance beyond 2030, a diverse range of additional supply and demand-side options have been assessed, in order to develop a robust strategy. The package of options with the lowest economic, environmental and social cost, which is sufficient to meet the assumed supply-demand balance to 2050, comprises a diverse suite of extended and new demand management options. The most effective option, based on current experience in many places around Australia, including

Pimpama Coomera on the Gold Coast, focus on improving the efficiency of water use and increasing recycling and rainwater capture in new developments. New developments are driving the increase in demand, so a strategy which directs attention towards this growth sector is likely to be most effective at curbing the upward pressure on demand. Other options include water efficiency standards for water using appliances and fixtures, extending the existing rebate, retrofit and business water saving programs, outdoor water efficiency programs.

With the implementation of these demand-side options, in addition to the existing suite of supply-side and demand-side options proposed by the Queensland Government, there will be no need for a dam at Traveston Crossing on the Mary River, or other additional supply infrastructure, in order to meet the supply-demand balance over the period to 2050. This suite of options has the potential to save over 190 GL/a of water by 2050 at an average unit cost of $1.15/kL. For comparison, the Traveston Crossing scheme will supply approximately 150 GL/a by 2050 at a unit cost of approximately $3.00/kL. Further, the proposed strategy will reduce greenhouse gas emissions relative to the Traveston Crossing scheme by more than 1,000,000 tonnes per year.

In the event of a deep drought worse than the current drought (which is itself the worst on record for the Wivenhoe-Somerset system) or a worsening of the current drought, 'readiness' options, which are not rainfall dependent, offer a much lower risk and lower unit cost alternative to the Traveston Crossing scheme. The idea of readiness options is that the planning, design, land acquisition and approvals are all obtained. However, the construction is triggered only in the event of a deep and prolonged drought, thus offering effective insurance against a low probability event and the ability to adaptively respond to changed circumstances. The risk-weighted cost of such a strategy is a fraction of the cost of pre-emptively building new supply options, especially such a high cost, high risk alternative as the proposed dam at Traveston Crossing on the Mary River. Suitable candidates for such a readiness strategy include indirect potable reuse in a range of locations, followed by scaleable desalination capacity at Bribie Island and indirect potable reuse in a range of locations. Indirect potable reuse is preferable in terms of the greenhouse gas emission intensity and other environmental benefits, but is dependent on suitable community engagement processes, and was to be the subject of a plebiscite in March 2007, which was cancelled as this report was being finalised.

This Study outlines a robust strategy for meeting the supply-demand balance within the planning horizon of 2050, without needing to construct a dam at Traveston Crossing on the Mary River. This is a strategy that has significantly lower costs, reduced greenhouse gas emissions and reduced environmental and social impact. It also offers an adaptive approach to changing circumstances in terms of yield and demand. This Study also makes a series of recommendations to improve the transparency and level of community engagement in water planning in SEQ.