

# SOUTH EAST QUEENSLAND REGIONAL WATER SUPPLY STRATEGY



securing the future of  
South East Queensland's  
water supply

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## SEQRWSS CONSULTATIVE WORKSHOP REPORT 3

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### NEWS

#### Queensland Future Growth Fund

On Wednesday April 26, Premier Peter Beattie and Deputy Premier and Treasurer Anna Bligh announced that the State Government would legislate to create the Queensland Future Growth Fund to help meet the challenges of climate change and continued economic development.

The fund will be financed from the sale of Sun Retail, comprising the retail business arm of Energex - and the contestable elements of Ergon Retail.

As a priority under the Fund the Government will allocate approximately \$200 - \$300 million to help accelerate the building of two new dams and two new weir projects.

#### Dam Site Investigations

On Thursday April 27, Premier Peter Beattie and the Minister for Natural Resources Mines and Water Henry Palaszczuk announced that the State Government will investigate the feasibility of a major new dam on the Mary River in the Gympie region and examine a proposed for the upper reaches of the Logan River at Tilleys Bridge.

As part of this process, the Government will also re-examine the existing proposal for the Wyaralong Dam site as compared to the new site at Tilleys Bridge near Rathdowney. A detailed investigation, including geotechnical works, will be carried out to determine which site will deliver the best yield.

## WORKSHOP 3: Bulk Supply Options

Twenty people from various groups attended the third Regional Water Supply Strategy workshop on Friday 7 April at 80 George Street, Brisbane.

The workshop had four major aims:

- provide feedback regarding issues and questions raised in Workshop 2
- to present information on bulk supply options
- give participants an opportunity to discuss the issues and challenges associated with selecting bulk supply options
- to gain an understanding of the choices that participants would make regarding bulk supply options and the criteria they would use in making these choices.

The workshop was divided into two sessions: morning and afternoon.

### Session 1

The morning session was broken into two parts. The first was devoted to providing responses to issues and questions raised at Workshop Two.

The second part was devoted to three presentations regarding the issues and challenges associated with three major bulk supply options:

- dams
- indirect potable recycling
- desalination.

### Session 2

The afternoon session was devoted to a hypothetical exercise designed to:

- give participants a concrete understanding of the issues and challenges associated with selecting bulk water supplies
- elicit from participants preferences regarding bulk supply options and the criteria for selecting them.

## FEEDBACK ON WORKSHOP 2

At Workshop 2 participants were asked to:

- consider and comment on the criteria being used in the screening processes being used to identify options for reducing demand and increasing supply
- participate in a demand management questionnaire and group work
- flag any burning issues that they thought needed clarification.

A number of burning issues were flagged by participants. Many of these issues related to the topics and contents of the remaining Workshops, and will be addressed by them. However, two major issues were flagged that were addressed in this workshop

The first concerned the multi criteria analysis process being used by the Strategy particularly the:

- criteria used in screening process demand reduction and new supply options
- methods associated with developing a performance matrix of Strategy scenarios.

Ian Pullar was scheduled to respond to this issue. However, at the last minute he became unavailable. It is planned to address this issue in a later workshop.

The second issue flagged concerned the workshop process. Participants were concerned with the

- length of the workshops
- layout of the room
- lack of question time
- floor being dominated by a small number of individuals
- venue.

With the exception of the venue, the Strategy Team have taken a number of actions to address the issues raised – from now on:

- full day workshops will be organised, this will provide more time for questions and any activities
- catering of lunch and break times will be improved
- seating arrangements will be changed
- more formal measures will be adopted to ensure the floor is open to all.

## WORKSHOP PRESENTATIONS

Presentations regarding three bulk supply options were presented. All presentations have been sent out by email.

### Dams

Dr Wai-Tong Wong, the Manager of Infrastructure Projects in the Natural Resources, Mines and Water, Water Infrastructure Planning Group, gave a presentation on hydrology and dams.

Dr Wong has 20 years experience in the water industry and has worked for the State and Commonwealth governments, and the private sector. Recently, he has project-managed the development of the draft Moreton Water Resource Plan.

Dr Wong discussed the use of dams for bulk water supply and the hydrological issues and challenges. He explained that:

- hydrologic analyses are based on an analysis of an historical record (usually 100 years)
- the Historical No Failure Yield (HNFY) is the quantity of water that could have been extracted from a dam operation over the historic period without falling below dead storage level
- if a more severe drought than has previously been recorded occurs, the HNFY will be reduced – the current drought will lead to reductions
- it would be possible that even if future climate displays the same variability as the last 115 years of records, existing storages will produce different yields those obtained to date
- climate change will also produce different yields
- climate variability and change need to be accounted for in the planning and management of water supplies for major urban areas where running out of water is unacceptable.

### Indirect Potable Recycling

Tad Bagdon, Manager, Sustainable Water Systems in the Queensland Environmental Protection Agency, gave a presentation on Recycled Water as a supply option for South East Queensland. For the last four years, he has been responsible for the implementation of the Queensland Water Recycling Strategy and the delivery of water conservation programs.

Tad is a systems engineer by trade with a background that includes development and delivery of sustainable energy programs, implementation of quality assurance and advanced technology manufacturing systems such as robotics, customer service systems management in the energy industry and delivery of industry assistance programs for the Commonwealth Government.

Tad's presentation discussed the pressures of climate variability and growth on the water supply system, government initiatives to investigate, and the issues and options for consideration when investigating recycling as a bulk supply option.

Tad highlighted the viability of using recycled water as a bulk source of potable water supply in south east Queensland. He emphasised the ease with which advanced water recycling technologies could deliver a safe and reliable supply of drinkable water. Tad explained that indirect water recycling could supply potable water more economically than many other alternative water supply options, such as:

- rain water tanks
- purple pipes
- desalination

He explained that indirect potable recycling is logistically and administratively easier to implement and maintain than either rain water tanks or "purple pipes".

He also explained that:

- rain water tanks cannot be retrofitted for internal household purposes in most houses or apartments in existing urban areas
- the arid and variable climate of much of the region undermines the effectiveness and increases the cost of water supplied by rain water tanks – particularly in the proposed new urban areas which are arid and have highly unreliable rainfall
- “purple pipes” cannot be retrofitted into most existing urban areas
- “purple pipes” can be installed in, at most, 40% of all the planned new urban development in the region
- it will be difficult to ensure that land owners (particularly landlords) will install, maintain and use rain water tanks and “purple pipes” properly
- indirect potable recycling would provide recycled water to everyone, not just in areas serviced by “purple pipes”
- indirect potable recycling would not have the logistical, administrative and safety issues associated with rain water tanks and “purple pipes”.

## Sea Water Desalination

Dr Siobhan Boerlage is an international expert on desalination technology. She has more than 10 years international experience in advanced water treatment processes – specialising in membrane filtration, especially reverse osmosis for brackish and seawater desalination. She is also a reviewer of the Desalination Journal and Journal of Membrane Science.

In Australia, Dr Boerlage has been involved in seawater desalination feasibility studies for Perth, Sydney, Gold Coast, south east QLD and Victoria.

Dr Boerlage is currently assisting GHD in providing advice to the Strategy regarding the potential of desalination as a bulk water supply in SEQ.

Dr Boerlage provided a detailed presentation on the issues and challenges associated with sea water desalination. In her presentation she explained that:

- in recent years there have been significant changes and improvements to desalination technologies
- all desalination processes require large amounts of energy, and that typically this energy is generated by burning fossil fuels
- sea water desalination is expensive in comparison to dams, weirs and aquifers
- considerable care needs to be taken in selecting sites for sea water desalination plants
- it is important to understand how the quality of sea water changes through the course of a year to ensure that the sea water inputs are compatible with the design of the plant and are able to be reliably treated to the standards required
- all desalination plants produce a highly concentrated brine stream – typically this brine stream is highly corrosive and toxic
- management of the disposal of the brine must be undertaken with care
- desalination plants take a number of years to plan and build
- there are only a small number of suppliers of reverse osmosis equipment in the world.

## CAYMAN BAY HYPOTHETICAL

This was the first of a series of planned hypotheticals designed to:

- share information about issues and challenges, without revealing infrastructure sites
- provide a means by which participants could think about how they would combine supply options to provide sufficient water to supply the region
- obtain an understanding of the participants' preferred bulk water supply methods
- identify the criteria participants would use when making choices about and comparing bulk water supply options
- enable participants to gain a region-wide understanding of the issues, challenges and opportunities associated with keeping water demand and supply in balance for fifty years.

The exercise concerned the hypothetical area of Cayman Bay. This hypothetical area shared many of the physical characteristics, issues and challenges as SEQ. The participants were presented with hypothetical information regarding:

- future demands, and their locations
- volumes of water permitted to be extracted under Water Resource Plans
- locations and yields of dams, and distances to water treatment plants
- locations of sewage treatment plants
- percentage of water that can be recycled

- the amount of recycled water that can be placed into each dam
- locations of desalination plants
- costs of infrastructure.

The exercise revealed that participants:

- believed that no new sources should be built until demand management and network efficiency measures have been fully implemented
- believed that it is just as important to maximise recycling as it is to build new dams to expand supply
- were prepared to transfer recycled water from areas that had nowhere to store it to areas that had spare capacity
- were willing to inundate small areas of national park, if it enabled full utilisation of recycled water
- were prepared to move small towns *in toto*, rather than disperse communities, to make way for a dam
- preferred to construct dams on subsidiary streams or at the top of catchments, rather than on the main stream lower down
- believed desalination should be considered a last resort option, because of the expense, high energy inputs, and great distance from available sites and centres of demand
- believed that dams with highly variable inflows and/or likely to be adversely affected by climate change should not be built.

## WORKSHOP EVALUATION

The feedback on this workshop was very positive. An evaluation session was run with participants who stayed to the end of the workshop to open discussion about the workshop process. All participants expressed satisfaction with the way workshops were progressing.

Participants suggested workshops were improving and that this workshop achieved a “better balance of content and contribution”. There were significantly fewer burning issues identified at this workshop which indicates that participants are getting their questions answered.

Participants were very impressed with the presentations, giving presenters an average score of 7 out of 10.

The bulk supply hypothetical exercise also received an average rating of 7 out of 10. Participants indicated that they would have preferred more ‘rules’ or directions but while they found it a little difficult to get started, all seemed to have found it a productive exercise.

## INTERESTING LINKS

A key aim of the workshop series is to share information about the SEQRWSS and water supply planning generally.

Many participants have asked that we point them to useful sources to help them gain a better understanding of the issues, challenges and opportunities associated with water supply planning and management.

Below is a number of links to government policy documents, other water planning documents, and academic studies regarding demand management.

We hope you find them useful.

- [http://www.nrm.qld.gov.au/about/policy/documents/2033/pdfs/wic\\_2005\\_2033.pdf](http://www.nrm.qld.gov.au/about/policy/documents/2033/pdfs/wic_2005_2033.pdf)
- [http://www.epa.qld.gov.au/environmental\\_management/water/](http://www.epa.qld.gov.au/environmental_management/water/)
- <http://www.epa.qld.gov.au/publications?id=411>
- [http://www.nrm.qld.gov.au/science/pdf/climate\\_smart\\_adaptation.pdf](http://www.nrm.qld.gov.au/science/pdf/climate_smart_adaptation.pdf)
- <http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=45787>
- [http://www.nrm.qld.gov.au/water/water\\_commission.html](http://www.nrm.qld.gov.au/water/water_commission.html)
- <http://www.cuwa.org/publications.html>
- <http://www.yvw.com.au/NR/rdonlyres/983166CA-B506-4C08-8B95-5EDD378CFB53/0/REUMSReportFinal.pdf>
- <http://www.yvw.com.au/NR/rdonlyres/4CCF0B18-4E7F-4F0B-AD17-98A63F503606/0/ASUPReportFinal.pdf>
- <http://www.actew.com.au/futurewateroptions/Reports.aspx>
- [http://www.isf.uts.edu.au/publications/White\\_Milne\\_Riedy\\_280203.pdf](http://www.isf.uts.edu.au/publications/White_Milne_Riedy_280203.pdf)
- <http://www.isf.uts.edu.au/publications/E20632A.pdf>
- [http://www.isf.uts.edu.au/publications/Turner\\_Campbell\\_White.pdf](http://www.isf.uts.edu.au/publications/Turner_Campbell_White.pdf)
- [http://www.isf.uts.edu.au/publications/ISF\\_Water\\_Article.pdf](http://www.isf.uts.edu.au/publications/ISF_Water_Article.pdf)
- [http://www.isf.uts.edu.au/publications/AT\\_SW\\_KB\\_AG\\_2005.pdf](http://www.isf.uts.edu.au/publications/AT_SW_KB_AG_2005.pdf)



## AIMS OF NEXT WORKSHOP

As explained in previous workshops, the Strategy Team had intended to run a series of exercises intended to:

- share information
- give participants the chance to gain a concrete understanding of the issues, challenges and opportunities associated with water planning and management in SEQ.

We had planned to base the next workshop around a hypothetical where participants would be asked to do a Water Balance over a 50 year period—the planning horizon of the SEQRWSS. This workshop was intended to focus on the issues and challenges associated with keeping demand and supply in a region like SEQ in balance for 50 years.

However, as you are all aware the State Government has announced that two new dam sites will be investigated as part of the SEQRWSS:

- Traveston on the Mary
- Tilleys Bridge on the Logan.

The Strategy Team believes that it is important that we share with you the information and reasoning behind this decision.

Consequently, we propose to abandon the planned workshop on the Water Balance and replace it with one focusing on the announced investigations.

We propose to structure the next workshop around a series of presentations that will outline why these sites have been selected for investigation, and possible construction.

These presentations will cover material:

- we had planned to cover in the Water Balance workshop and the Contingency Planning workshop
- more issues and findings to do with demand management
- other material about the sites and process associated with conducting investigations.

## DAM MYTHS

It has come to the Strategy Team's attention that a number of stories are circulating about the two proposed dams and the timeframe for construction if they go ahead.

It is important that everyone understand that:

- all that has been announced so far is that preliminary geotechnical and environmental investigations are to be conducted, and \$50 million has been put aside to assist those people suffering hardship as a result of the announcements
- construction is dependent on these preliminary investigations demonstrating that it is feasible to build dams at the proposed sites
- if these investigations find no fatal flaws, Environmental Impact Studies and other legislative requirements will need to be done
- the proposed dams will only be built if they pass these hurdles and approvals are obtained
- it will be several years before construction could begin.

Some residents in the affected areas are being fed information that:

- the dams will be built within the next few months
- they will have to leave before the end of the year.

Neither is correct.

These claims are causing undue distress to the people potentially affected by these dams.

Despite what is being reported in some media:

- no construction will occur for several years, if at all.
- all proper processes will be followed.

We have said from the outset that all options were being considered. As we have no up-to-date geotechnical data for these sites, we have to gather such data so they can be properly assessed.

## NEXT WORKSHOP

**Date:** Thursday 15 June

**Start:** 10.00am

**Finish:** 4.00pm

**Location:** Room 1, 80 George Street, Brisbane.  
Lunch, tea, and coffee provided.