

# MOKOAN

## RETURN TO WETLANDS

BROKEN SYSTEM RELIABILITY REFERENCE COMMITTEE

# Reliability Matters

The Broken System Reliability Reference Committee (BSRRC) was established to work with Goulburn-Murray Water (G-MW) and the Department of Sustainability and Environment (DSE) to develop a package of water saving and recovery measures for the Broken Valley following the Victorian State Government's decision to decommission Lake Mokoan.

A combination of works is the most effective method for recovering water for the environment while maintaining existing reliability of supply with continued water reform.

The BSRRC has discussed the development of the Broken System water supply reliability assessment as part of the Bulk Entitlement (BE) process. Together with DSE, the committee resolved that the matter be put to one side while they focus on finding offset measures that, if implemented, would maintain current water supply reliability.

The Committee believe that 80% reliability used in the BE was not accepted by irrigators and that no community consultation took place; reliability was not fully researched because of the nature of the study. The Committee also presented the view that the 1940s drought period was the reason for the reduction from 100% to 97% security and that debate on reliability levels between 91% and 97% is based on assumptions regarding blue-green algae.

The DSE position on reliability is that 91% is the Government's commitment under the White Paper, Lake Mokoan Study and the current Bulk Entitlement. DSE consider that operational efficiency is another factor affecting the modeling of current system reliability. The Minister for Water has advised a delegation from the committee that he still has an open mind on the matter of reliability.

Further discussions on how to resolve the differences in approach by the BSRRC and DSE to the impact of blue-green algae and operational efficiency on supply reliability have been put on hold to allow the committee to focus on the formulation of a viable package of reliability offset measures.

The BSRRC and DSE positions on existing supply reliability are fully described in separate papers available at [www.lakemokoan.com](http://www.lakemokoan.com)



# Reliability Scorecard Developed

The Reliability Reference Committee is focussed on finding offset measures that can be put in place to maintain the current water supply reliability.

Several methods of evaluating options have been developed. A 'Scorecard' addresses offset measure points including cost, reliability benefit, risks, environmental and social impacts, community acceptance and contribution to water savings. The Scorecard enables the Committee to compare relevant information about the impacts and efficacy of identified offset measures and therefore to include those most beneficial in the package.

A method of comparison has also been developed to evaluate the reliability benefit of each offset measure. This will indicate the reliability improvement required by the offset

measures package to achieve current supply reliability with Lake Mokoan excluded from the Broken System.

An extract of the Scorecard that indicates the range of offsets currently under consideration and the status of investigation into each option is available at [www.lakemokoan.com](http://www.lakemokoan.com). This information will be updated as investigations proceed.



## Nillahcootie Catchment Forest Plantations

The BSRRC has written to the Goulburn Broken CMA and the Department of Sustainability and Environment to raise its concerns over the potential for further afforestation in the Nillahcootie Catchment to adversely affect the catchment water yield and therefore the reliability of supply to Broken System water users.

## Frontier Economics Water Pricing Policies & Implications

The Reliability Reference Committee has discussed the possible outcomes of the Frontier Economics report and questioned the Government policy regarding cost recovery after Lake Mokoan is decommissioned. Goulburn-Murray Water is to undertake price modeling to assist with future directions on Broken System pricing.

## Broken System Water Allocation Priority

The Reliability Reference Committee again affirmed its expectation that future allocation of water from the Broken System will be to in-valley users as a first priority with supplementary water made available to the Goulburn and Murray systems as a secondary priority.

## Joint Committee Meeting Held

The Broken Reliability Reference Committee participated in a joint meeting with the Lake Mokoan Future Land Use Steering Committee to establish a relationship between the committees, to foster communication and to identify where objectives might overlap.

Both committees agreed that options for the future use of the Mokoan Inlet Channel and the location of a mid-system water supply storage near its current site were of direct relevance. The committees also observed that the cost benefit analysis at Option 5 of the Lake Mokoan Study should be revisited to ensure costs are accurately estimated.

## Full Take-up: Reliability Impacts

Goulburn-Murray Water recently detailed impacts of Full Take-up of water entitlements on current system reliability. The study identified that Full Take-up could increase long-term average irrigation demand by up to 65%. This level of demand increase would result in decreased reliability in full license volume to 85%; the reliability of a 70% sales allocation would fall to 6%. The BSRRC resolved to consider the impact of Full Take-up on supply reliability after the preliminary package of supply offset measures has been developed.

## The Efficiency Improvement Study

Operational losses current on the Broken River and Broken Creek during the irrigation season affect water supply efficiency in the area so a study is being undertaken to identify opportunities for the improvement of operational efficiency in the Broken supply system.

The study is divided into three stages:

- **Stage 1:** Assessment of transmission and operational losses experienced in various reaches of the Broken River and Broken Creek for the period 1996-2005. Outcomes from Stage 1 will be used to support necessary improvements to the system model and highlight where losses may be reduced.
- **Stage 2A:** Assessment of engineering considerations including size, location, and cost of offset options which, when combined with water loss reduction options identified in Stage 1, may provide significant water savings and reliability improvements.
- **Stage 2B:** Consideration of further offset options arising from system loss reductions and confirmation of the extent of the reliability benefit provided by options identified in Stage 2A. Other offset options will also be considered in this stage.

Opportunities already identified include pipelining or channeling sections of supply from the Broken Creek, the use of weirs to store and re-regulate rain rejection flows, or the use of other off-stream storage options for this purpose, and the use of automatic control, remote control and improved monitoring technology.

## Mid-System Storage Options Study

Included in the scope of the Efficiency Improvement Study is consideration of a mid-system storage. Preliminary results of supply reliability benefits, water savings impacts, costs and engineering aspects of 5,000 to 20,000 ML capacity storages located at Mokoan, but not overlapping with the future wetland, have been presented to the BSRRC. These storages were shown to be extremely expensive, due mainly to the deep excavation required and the long lengths of embankment.

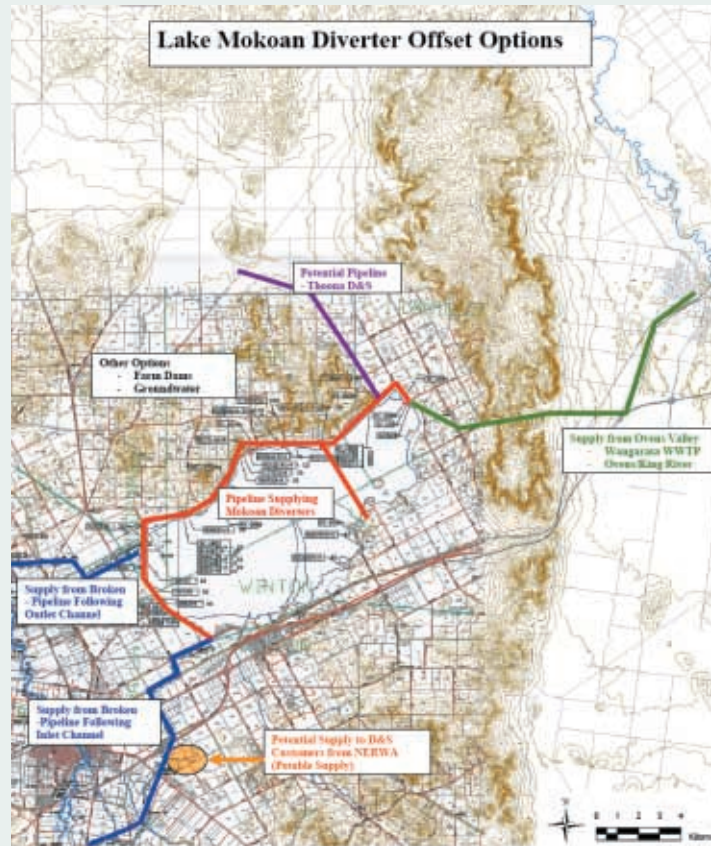


# Alternative Supplies to Lake Diverters

Consulting engineers have provided a report on a range of conceptual options for alternative supplies to Lake Mokoan diverters, including both irrigation and domestic and stock supplies. The engineers included supply options to diverters along the inlet and outlet channels.

Several options are under consideration, including supplies from the Broken River, from Holland's Creek, from the Ovens River and possible supplies of tertiary treated wastewater from Wangaratta (for irrigation only). An alternative supply to the Thoona area and supply of potable water by extension of the North East Region Water Authority mains from Benalla have also been raised as options. In support of the alternatives presented, a range of different pump station and pipeline configurations for delivery of water from each source to demand areas was also provided.

More detailed studies of several of the options are about to commence. Direct discussions with affected water users planned for December-January will further refine the supply options.



Plan of alternate supply sources and supply routes

# Alternative Supplies to the Lower Broken River

A further report outlined a range of alternative supplies from the East Goulburn Main Channel for water users on the Lower Broken River where current supply is pumped directly from the river. Options included releases into the river from the main channel for supplies downstream to Kialla, possible expansion of supplies from the existing Shepparton area distribution channel system and various pump and pipeline options extending upstream of the channel along the Broken River to Gowangardie River.

Preliminary assessments are being undertaken to determine the feasibility of the options raised. Next steps will include detailed consideration of costs, matters relating to service levels and irrigation demands and, subject to the feasibility of these options relative to other offset options, will involve direct discussions with affected water users.

# Fact Sheets

1. Broken System Catchment Hydrology
2. Broken System Water Supply Infrastructure
3. Broken System Water Entitlements and Allocations
4. Broken System Water Supply Management and Operation
5. Modeling of Water Supply Systems & Reliability of Supply
6. Mokoan Project – Reliability Offsets - Scorecard Summary
7. Answers to Questions and Issues Raised at the Broken System Water Users Meeting, June 2005

Available soon at [www.lakemokoan.com](http://www.lakemokoan.com) or through the Mokoan Project Office ph: 03 5761 1659



# Project Information Sessions

Goulburn-Murray Water and the Department of Sustainability and Environment are planning forums for small groups of up to 10 people. Information about all aspects of the Mokoan – Return to Wetlands Project will be provided and attendees are welcome to raise issues or concerns for resolution.

Subject to interest, forums will take place in local community venues from December 2005 to February 2006.

Please register your interest in participating in a Mokoan Lake Project Forum by contacting the Mokoan Project Office on 03 5761 1659 or [brokenreliability@g-mwater.com.au](mailto:brokenreliability@g-mwater.com.au)

For more information on the Mokoan – Return to Wetlands project, please refer to [www.lakemokoan.com](http://www.lakemokoan.com)



## Mokoan Decommissioning Implementation Timeline

### March-Nov 2005

Concept reports and computer modeling of reliability completed, committee consideration of reliability, costs, impacts of each offset.

### Nov 2005 – February 2006

Review of current information and refining offset package.

### January – February 2006

Presentation to Stakeholder meetings.

### February – March 2006

Committee reviews final package of offset proposals.

### March-April 2006

Presentation to Goulburn-Murray Water Board.

### June 2006

Presentation to Government.

### July 2006 – December 2008

Detailed Design and Implementation.

## The Broken River Reliability Reference Committee

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