

Healthy HeadWaters Coal Seam Gas Water Feasibility Study

About the study

In July 2008, the Council of Australian Governments signed the Intergovernmental Agreement on Murray-Darling Basin Reform, which establishes new governance arrangements for the Murray-Darling Basin. The Australian Government also agreed in principle to provide around \$3.7 billion for significant water projects—called priority projects—in Murray-Darling Basin states.

Subject to agreement between the Australian and Queensland governments, up to \$160 million will be provided over 10 years for Queensland's priority project, known as the Healthy HeadWaters Program. This program is being managed by the Department of Environment and Resource Management and funded under the Australian Government's \$12.9 billion Water for the Future initiative.

Five million dollars of the Healthy HeadWaters Program funding has been allocated to examine the use of coal seam gas (CSG) water in addressing water sustainability and adjustment issues in the Queensland section of the Murray Darling Basin (QMDB).

The Coal Seam Gas Water Feasibility Study will analyse the opportunities for, and the risks and practicability of, using CSG water to assist in achieving the long-term goals in the QMDB of transitioning irrigation communities to lower water use and securing viability of ecological assets.

Among other things, the study will consider the feasibility of using CSG water to relieve demand on groundwater for irrigation in heavily committed aquifer systems near the Condamine River.

Background to the study

CSG is a natural gas, consisting primarily of methane, which is adsorbed onto coal. Production of CSG is increasing rapidly in Queensland and is set to increase even more dramatically as CSG producers seek new markets for their product by establishing a liquefied natural gas (LNG) industry. CSG resources in Queensland are located primarily in the Surat and Bowen basins.

CSG is produced by dewatering coal seams to reduce the pressure that keeps the gas in place. This process brings significant quantities of saline water to the surface.

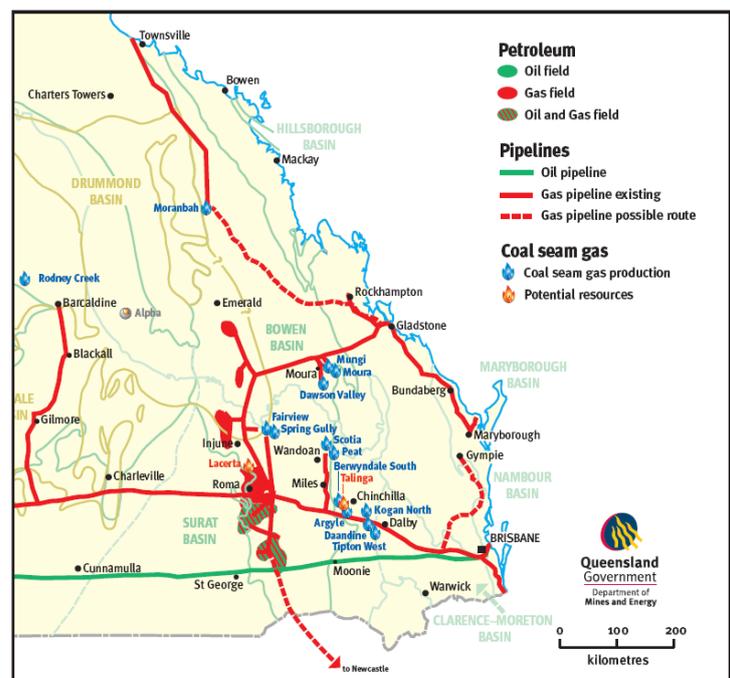
Salinity of CSG water is variable. Total dissolved solids (TDS) values vary from 200 to over 10 000 milligrams per litre (mg/l), but are most commonly in the range of 1000–6000 mg/l. For comparison, good quality drinking water has TDS values of up to 500 mg/l; some plants are affected by water with TDS values as low as 1000 mg/l; and the TDS value of seawater is about 35 000 mg/l.

Queensland Government policy requires CSG producers to treat their CSG water unless it can be injected into suitable aquifers or used directly without treatment. This policy encourages beneficial use of the treated CSG water and minimises the ecological risks of CSG water disposal.

Notwithstanding this policy, there are ongoing concerns about the risks posed to surface streams and landscapes by the use and disposal of CSG water. In addition, there are concerns about the impacts that the extraction of CSG water from coal seams may have on groundwater resources, including reserves in the Great Artesian Basin and the Condamine River Alluvium.

There are also uncertainties surrounding the likely volumes and reliability of CSG water supply as well as the demand for water in the QMDB and nearby regions in the next few decades.

An improved understanding of these risks and uncertainties is needed in order to properly assess the feasibility of using CSG water to assist in addressing water sustainability issues in the QMDB.



Design of the study

The study is being undertaken as a series of activities as shown in the diagram below.

Activities 1 to 7 consist of investigations to fill knowledge gaps relating to the risks of both extracting and using CSG water, as well as analyses of the likely supply of, and demand for, CSG water. Subject to the risks of using CSG water being acceptable, and the availability of reliable supplies, Activities 8 and 9 will assess specific opportunities for using CSG water to assist in achieving objectives of the Healthy HeadWaters Program.

While the primary aim of the study is to determine how CSG water may contribute to the objectives of the Healthy HeadWaters Program, the findings will be invaluable for managing the environmental and resource management risks associated with the rapidly expanding CSG industry both within and outside the QMDB.

The Department of Environment and Resource Management will use the expertise of internal staff and external consultants for the study. It will also consult with industry and the community throughout the study.

The study is due to be completed in mid 2012, with several activities scheduled to finish before then.

Further information

For further details about the study, please email csgwaterstudy@derm.qld.gov.au.

For information about the Queensland Government's policies relating to CSG water, visit www.derm.qld.gov.au

For information about the Australian Government's Water for the Future initiative, visit www.environment.gov.au/water/australia.

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For general enquiries contact the Queensland Government call centre 13 13 04 or visit www.derm.qld.gov.au

CSG Water Feasibility Study - Project Design

Objective - Assess the feasibility of using CSG water to assist in . . .

- 1) Transitioning QMDB irrigation communities to lower water use
- 2) Securing viability of ecological assets

Risks

Opportunities & Practicability

Outcomes - Improved understanding of . . .

The nature of CSG waters and coal seam hydrogeology

Potential impacts to surface and groundwater systems from CSG water production, use and disposal

When and where CSG water will be available for use

Existing and predicted future water demand in South-West Queensland over the next 50 years

Potential opportunities for using CSG water to assist in transitioning irrigation communities to lower water use

Activities - Investigations and assessments of . . .

1
Chemistry, origins & hydrogeology of CSG water

3
Salinity impacts of using CSG water on landscapes

5
Groundwater impacts of CSG water extraction

2
CSG water production modelling & forecasting

7
Water demand analysis for South-West Queensland

8 & 9
Specific proposals for using CSG water in the QMDB

4
Stream ecosystem health response to CSG water release

6
Risks and feasibility of injecting CSG water and brines into aquifers

Activities 1 to 7

Note - activities supporting two outcomes are shaded with the colours of those outcomes.