



GISERA
Gas Industry Social and
Environmental Research Alliance

CSIRO Gas Industry Social and Environmental Research Alliance

NSW Update

March 2019



Aerial photo of Narrabri



FUNDING UPDATE

What is the longevity of the NSW GISERA funding?

There is currently \$1.1 million of GISERA funding available for future research in NSW. The CSIRO anticipate two further tranches of research to be put forward. The next tranche will be considered by the RRAC in June 2019 and the last tranche will be undertaken following an announcement by government on the outcome of the Narrabri Gas Project.

Is there ongoing funding?

Following approval of the next two tranches of research, all funds will be exhausted.

What is happening with RRAC meetings?

The next GISERA RRAC meeting will be scheduled for June 2019.

What is the future framework for GISERA research?

Our research will consider the potential impacts of the Narrabri Gas Project going ahead and economic impacts should the project not proceed.

What are the research priorities?

The next tranche of research will include proposals on:

- A post approval community wellbeing, resilience and attitudes to CSG development survey to be undertaken during the construction phase. This project would be subject to the approval of the Narrabri Gas Project.
- Assessing the regional effects of on-shore gas activity on agricultural economic and productivity outcomes
- Assessment of faults and intrusions as potential hydraulic seal bypasses in the Pilliga area

The last tranche of research will be aimed at pursuing any outstanding questions raised in past research or any relevant stakeholder questions that may exist after the completion of the EIS.

GISERA is happy to hear any requests for engagement or information sessions that provide opportunity for presentations on our research results and to hear community feedback, particularly on how the research can be applied.

PROJECT UPDATE

Surface and Groundwater

Impacts of CSG depressurization on Great Artesian Basin (GAB) flux

AIM: This research aims to improve the understanding of the GAB groundwater flow in the Pilliga region through integration of existing information from models, hydrochemical data and environmental tracers.

OUTCOME: The outcome of this project is an assessment of potential changes in GAB groundwater flux (flow volumes) as a result of CSG development using state of the art uncertainty analysis and modelling.

STATUS: This project is currently 80% complete, and is expected to be completed by the middle of 2019.

PROJECT OUTPUTS:

- *Journal Paper:* [Probabilistic modelling and uncertainty analysis of flux and water balance changes in a regional aquifer system due to coal seam gas development](#), September 2018.
- *Final report:* [Uncertainty analysis of CSG- induced GAB flux and water balance changes in the Narrabri Gas Project area](#), August 2018.
- *Factsheet:* [Potential water impacts of coal seam gas in the Pilliga Sandstone](#), August 2018.
- *Interim report:* [Uncertainty analysis of CSG- induced GAB flux and water balance changes in the Narrabri Gas Project area](#), October 2017.

Improving groundwater models to better represent CSG extraction impacts in the Namoi Region

AIM: This research will develop more representative models for estimating the groundwater impacts from coal seam gas well fields.

OUTCOME: This will improve the prediction of groundwater impacts by ensuring accurate representation of the effects of CSG production in the groundwater models being developed for the Namoi region.

STATUS: This project is currently 80% complete and is expected to be completed by May 2019.

PROJECT OUTPUTS:

- The final report will be delivered in May 2019.

Spatial design of groundwater monitoring networks in the Narrabri Gas Project (NGP) area

AIM: This research designed optimal groundwater bore networks for groundwater monitoring to provide tools for early detection of changes.

OUTCOME: The optimal spatial design of groundwater monitoring networks will improve confidence around predicted groundwater impacts, and help minimise the risk of environmental damage.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Final report:* [CSG-induced groundwater impacts in the Pilliga region: prediction uncertainty, data-worth and optimal monitoring strategies](#), March 2018.
- *Journal Paper:* [Design of optimal groundwater monitoring well network using stochastic modeling and reduced-rank spatial prediction](#), July 2017.
- *Review:* [Review of groundwater monitoring and opportunities for optimal network design for the Narrabri Gas Project area](#), June 2017.

Water contamination risk assessment on hydraulic fracturing in unconventional gas extraction

AIM: This research assessed the likelihood of groundwater contamination from hydraulic fracturing and wellbore damage.

OUTCOME: This produced a risk estimate of groundwater contamination at a basin/sub-basin scale. This will help management plans and strategies to reduce the risk of surface and groundwater contamination and provide communities a better understanding of potential impacts to local water resources.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Final report:* [Water contamination risk assessment on hydraulic fracturing in unconventional gas extra](#), August 2018.
- *Factsheet:* [Groundwater contamination risk assessment](#), August 2018.

Social and Economic

Social Baseline Assessment of the Narrabri Region in NSW

AIM: To understand and measure attitudes, perceptions and expectations that exist within the community with respect to CSG development, and current levels of community wellbeing and community resilience.

OUTCOME: The research produced baseline information about the community's wellbeing, perceptions, expectations and resilience in relation to CSG development.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Factsheet:* [Attitudes to CSG development in the Narrabri shire](#), April 2018.
- *Final report:* [Social Baseline Assessment: Narrabri project – Final Report](#), February 2018.
- *Phase 3 report:* [Community wellbeing and social attitudes to coal seam gas development, Social baseline assessment: Narrabri project](#), November 2017.
- *Phase 2 report:* [Understanding local community expectations and perceptions of the CSG sector Social Baseline Assessment: Narrabri project](#), March 2017.
- *Phase 1 report:* [Social Baseline Assessment: Narrabri project Phase 1: Planning and preparation](#), October 2016.

Analysing economic and demographic trajectories in NSW regions experiencing CSG development and operations

AIM: This study identified levels and trajectories of economic, social and demographic variables in CSG regions within NSW and analysed whether or not the CSG industry could change the trajectory of these variables.

OUTCOME: The research resulted in a comprehensive baseline assessment of economic, social and demographic characteristics of CSG regions in NSW and the potential impacts of CSG on these characteristics.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Journal Paper:* [Economic impacts of early unconventional gas mining: Lessons from the coal seam gas industry in New South Wales, Australia](#), February 2019.
- *Final report:* [Assessing the economic effect of CSG activity under different scenarios in NSW](#), January 2018.
- *Milestone 3 report:* [Assessing linkages between regional economic indicators and CSG industry activity in NSW 2001-2011](#), November 2017.
- *Media Release:* [New NSW study to understand economic impact of gas in regional communities](#), November 2017.
- *Milestone 2 report:* [Economic baseline for NSW CSG regions](#), August 2017.

Decommissioning pathways for CSG projects

AIM: The project reviewed regulatory frameworks in relation to principles derived from international literature and considered social concerns with regard to decommissioning of wells and well pad infrastructure.

OUTCOME: The project provided recommendations for an integrated approach to improving the social, economic and environmental effectiveness of decommissioning of wells and well pads.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Final report:* [Decommissioning coal seam gas wells](#), August 2018.
- *Factsheet:* [Decommissioning coal seam gas wells](#), August 2018
- *Journal Paper:* [Perspectives on successful coal seam gas well decommissioning](#), May 2018.

Health

Human Health effects of coal seam gas

AIM: This project has developed a framework to investigate the potential health effects of coal seam gas activities.

OUTCOME: The framework is based on community stakeholder, governmental, expert consultation group, and industry input and is designed to ensure that research into possible health effects associated with coal seam gas activity is both scientifically robust and meets community expectations.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Factsheet:* [Human health and CSG development: a framework to investigate possible health effects](#), February 2018.
- *Final report:* [Human Health Effects of Coal Seam Gas Activities – A Study Design Framework](#), January 2018.

Greenhouse Gas Footprint

Regional methane emission in NSW CSG basins

AIM: This project has identified and quantified methane emission sources such as CSG infrastructure, feedlots, coal mining and legacy bore holes in the Pilliga region.

OUTCOME: This research has resulted in a detailed understanding of methane emissions for the Pilliga region that can be used to compare emissions once large scale gas extraction starts.

STATUS: This project is now complete.

PROJECT OUTPUTS:

- *Final report:* [Regional Methane Emissions in NSW CSG Basins](#), October 2017.
- *Online media coverage:* [Understanding background methane emissions to inform energy debate](#), October 2017.
- *Media release:* [New NSW study to understand background methane emissions sources](#), October 2017.
- *Interim report:* [Regional Methane Emissions in NSW CSG Basins](#), April 2017.

Contact us

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