

## Research update

Issue 5, June 2016

### Message from the Director

Communities across Australia continue to have similar questions about the impacts and opportunities of the natural gas industry and want independent and trusted information.



Earlier this year a new [GISERA agreement](#) was ratified by CSIRO, Australia Pacific LNG, QGC, AGL Santos and Origin Energy. This new agreement ensures National GISERA continues to be at the forefront of delivering quality assured scientific information on the environmental, social and economic impacts of Australia's onshore gas industry.

New research projects undertaken, as part of the new agreement, will initially be in the Macarthur and Narrabri regions of NSW. The [NSW Regional Research Advisory Committee](#) (NSW RRAC) was established in April 2016 and the Committee held its first meeting in Narrabri on 25-26 May 2016. The Committee reviewed research proposals that ranged from gathering greenhouse gas data to social and economic impacts on the local community. Included in this first meeting was a field trip to Dewhurst South, Bibblewindi, Leewood, Tintsville and Wilga Park Power Station and members of the Committee provided positive feedback about the tour as they had never seen a coal seam gas plant and its associated infrastructure.

### News and Events

#### Expanding into New South Wales

Building on the success of GISERA's research in Queensland, a new National GISERA has been established.

The National Alliance includes a \$3 million investment from the Australian and NSW Governments and an annual cash contribution of \$150 000 from Australia Pacific LNG, QGC, AGL, Santos, Origin Energy. Read more at [CSIRO research alliance expands into New South Wales](#)

#### Our partners and how we work

GISERA members now include CSIRO, Australia Pacific LNG, QGC, AGL, Santos and Origin Energy. The Australian and NSW Governments also provide funding to National GISERA.

CSIRO's research status and experience in social, economic and ecological sciences allows it to provide impartial, integrated research to industry, regulators and the wider Australian community.

GISERA aims to achieve credibility, trust and respect from all stakeholders through the open and transparent conduct and communication of its research and related activities. Our governance model is central to ensuring independence and transparency in the research undertaken by CSIRO.

The Regional Research Advisory Committees (RRACs) are critical to GISERA's values and value proposition. With a majority of members who are not affiliated with industry, the committees oversee and approve all research projects within GISERA to ensure CSIRO's independence. Find out the members of the [NSW](#) and [Queensland](#) RRACs.

Read more about the new [Alliance Agreement](#)



NSW Regional Research Advisory Committee on a field trip in Narrabri.

GISERA's communication and engagement activities remains fundamental to National GISERA. GISERA's role is to provide independent and trusted information to communities, governments and the gas industry so they better understand the range of impacts associated with various development scenarios, and contribute to the development of policy, new and innovative management options. During the last year we've increased our communication and engagement activities and such activities will further intensify over the next six-twelve months.

Recently, CSIRO researchers engaged with landowners, farmers and the local communities at the Miles Show (May 2016) and CRT Farmfest (June 2016) in Toowoomba. Our researchers provided information on the results of their research such as impacts on [soil compaction](#) and [soil erosion](#), how [understanding the way farmers see their farm](#) helps communication, [community wellbeing](#) and [community attitudes towards CSG development](#).



CSIRO researchers talk to farmers and local community at Farmfest, Toowoomba.

Your thoughts and comments in relation to this Issue are always welcomed. Please contact us via the GISERA [website contact page](#) at any time. I look forward to sharing more research updates with you in the future.

Cheers,

Damian Barrett, Director GISERA and Research Director, Unconventional Gas, CSIRO Energy

## Project Updates



### Surface and groundwater

Earlier this year a report was completed for the [Geochemical Baseline Monitoring](#) project that aimed to understand and quantify aquifer reactions occurring due to re-injection of CSG water, and their impacts on water quality. Four of the six research projects in this portfolio are now complete and you can read the full reports on the GISERA website.

One of the two remaining projects [assesses the presence of organic compounds in groundwater found](#) in the Surat and Bowen basins using existing open source and company held data. The [other project](#) aims to better understand the speed and direction of groundwater flow.



### Greenhouse gas footprint

Two projects were recently approved in this portfolio, bringing the total number of projects to three. The [whole of life cycle greenhouse gas assessment](#) project analyses greenhouse gas (GHG) emissions from extraction, transportation through to usage of CSG in the Surat Basin. It will assist GISERA to establish the merit of natural gas as a transition fuel especially in the context of energy needs in developing and emerging economies and the associated benefits and risks.

In February 2016 the [Ambient air quality in the Surat Basin](#) project was approved. This research will provide the first comprehensive assessment of air quality in the Surat Basin region in Queensland and identify the impact of CSG production activities on air quality. Live data from several air quality monitoring stations will begin streaming on Queensland's Department of Environment and Heritage Protection website in the next couple of months.



### Agricultural land management

The research projects in this portfolio are examining the impacts of CSG on farming land. Read more about the results from the various projects [here](#).

One of the projects, '[Telling the story](#)', is aimed at sharing the changes towns and agricultural areas have gone through before CSG and during the development and production phases. Aerial data has been collated to generate landscape change maps to show differences and impacts.

A short video of the research results will be available on the GISERA website around mid-July.

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### Terrestrial biodiversity

A research project on the woolly wrinklewort *Rutidosia lanata* (Asteraceae) from southern Queensland has been initiated to better inform the conservation of this rare and protected daisy. Results show that the woolly wrinklewort is self-incompatible and mixing the populations during translocation would be beneficial. However, the genetic variation between populations means it is important to select populations to mix that will avoid producing sterile seeds. Learn more about this work at [Ensuring biodiversity offset success](#).

A report on [Priority Threat Management for Imperilled Species of the Queensland Brigalow Belt](#) was released this January. The research costed and prioritised a set of feasible threat management strategies for protecting 179 of the most threatened native plant and animal species of the Brigalow Belt bioregion, a highly modified biodiversity hotspot covering 20 per cent of Queensland.

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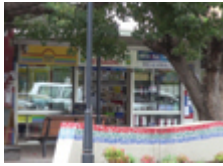
### Marine environment

Last year we completed work on Sustaining turtles and their homes, which looked at understanding how sediments from dredging and discharges affect seagrass and turtles. You can read the final report at [An Integrated Study of the Gladstone Marine System](#)

This research has led to the development of computer simulation models for water quality and seagrass beds in Gladstone Harbour. These models can be used to better understand long term trends in the harbour and assist in future planning. The results from this project have also been fed into models and research undertaken in [eReefs](#).

Last August excellent feedback was received on the final report via the CSG Marine Research Industry Forum which was held in Brisbane and a separate community forum held in Gladstone. GISERA hosted around 60 participants at these forums.

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## Social and economic

Currently there are two research projects underway in this area with three others already completed. The [economic assessment and forecasting](#) project is focussed on understanding future impacts on regional economies and how local businesses can respond.

The Community function and wellbeing project has been extended to include another survey to measure the changes since the end of the construction and start of the operations phase and compare results with Survey 1 in 2014. Early results indicate that the Community wellbeing remains favourable and relatively unchanged over two years of CSG development. Read this in full at [Comparing the 2014 and 2016 community wellbeing results](#) along with [Comparing the 2014 and 2016 community attitudes towards CSG development results](#).

