Community-driven research and scientific evidence to enlighten the coal seam gas debate.

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Summary

The environmental impacts of coal seam gas (CSG) mining on the environment, is a topic of major community debate not only in the Northern Rivers region but throughout Australia. Three interconnected community-engaged projects were performed to assess the environmental impacts of CSG in the last 12 months: (1) Baseline groundwater and creek water chemistry in northern NSW engaging on community volunteers and local landowners to sample over 100 groundwater wells in the Richmond River catchment; (2) Atmospheric chemistry monitoring in Northern NSW engaging local farmers to provide facilities and support biweekly maintenance of a monitoring station designed to assess potential leakages from CSG wells; (3) Greenhouse gas emissions from CSG fields engaging several local farmers and general community members to access sampling sites and perform surveys in the atmosphere and a major regional river. This project generated significant media coverage in Australia and overseas and raised awareness of previously overlooked environmental impacts brought about by an emerging industry. The research has empowered regional communities to protect some of their vital resources using independent scientific data and raising SCU’s profile in the national and international arena.

Background

A 10-fold increase in the CSG industry has been predicted over the next decade in Australia. Over $40 billion will be invested in CSG projects in QLD alone. However, our basic understanding about the influence of CSG mining on the environment remains very limited. This has led to major community concerns and calls for independent, unbiased research on the topic. The research team obtained an Australian Research Council grant in 2012 to purchase unique instrumentation initially for unrelated projects. This instrumentation is also ideal for monitoring how CSG may impact the environment. Responding to community concerns regarding the potential impacts of CSG, the research team closely engaged with multiple stakeholders to perform some of the first Australian independent experiments specifically designed to assess whether CSG mining poses a threat to the environment. Performing this research was challenging due to funding cuts to government agencies and the controversial nature of the topic. Funding was obtained from alternative agencies (i.e., Northern Rivers Organization of Councils; Rous Water) to fill the gap between the information demanded by the community and the scientific information available.

Learning

This team accepted the challenge of studying a completely new topic of atmospheric chemistry in relationship to CSG and went well beyond their comfort zones to perform research that was (and still is) relevant to the broader community. The researchers felt a moral responsibility to use their unique resources (i.e., Australian-first instrumentation) to address research questions that are of major national interest even though they were outside the researchers initial field of experience. Academics are in a privileged position to be able to choose the broad direction of their research. This team actively pursued opportunities to perform research that could be of value to the broader community. The researchers listened to the community and developed a sense of belonging within the region. The CSG projects have delivered major learning outcomes to all participants and reinforced the concept of life-long learning. This is an
important attribute to both junior students and well-established scientists. The researchers also learned from the process of engaging with people of all academic backgrounds which in turn informed their longer-term roles as educators, scientists and members of the general community.

Outcomes

The extent of media coverage and discussion that this research has generated can be demonstrated through the following:

- The unrequested creation of a website featuring our research: [https://www.getup.org.au/campaigns/coal-seam-gas/leaks/dirtier-than-coal](https://www.getup.org.au/campaigns/coal-seam-gas/leaks/dirtier-than-coal) The website has had over 100,000 Facebook “likes” and describes our team’s research in great detail.
- This project has been featured on websites, blogs and mainstream national media including ABC’s 7.30 Report, Four Corners, and the Sydney Morning Herald.
  - This research has been labelled as “highly significant” (ABC’s 7.30 Report) and has been credited with “opening up a new debate of national significance” (ABC’s Background Briefing).
  - Some media commentators have referred to this work as an example of research with major societal implications and have highlighted the “integrity” (Triple J Hack Show) of the project and researchers.
- Local newspapers (i.e., The Echo, Northern Star) have routinely written stories featuring this project as an example of university research with a community impact. “The Echo” has gone as far as writing that in regards to the research team “…has a rock star status in the community…” with hundreds of community members commending this work.
- Political parties with contrasting views
  - Greens: [http://greensmps.org.au/content/media-releases/greens-write-pm-fund-measurement-csg-leakage-now](http://greensmps.org.au/content/media-releases/greens-write-pm-fund-measurement-csg-leakage-now)


Impact

The general community, including mining companies and government agencies, now have the first independent peer reviewed Australian publication assessing how CSG may impact the chemistry of the atmosphere, with new publications addressing groundwater chemistry forthcoming. This information is crucial to feed a debate that is often emotional and lacks scientific rigour.

The development of basic technical skills (i.e., groundwater sampling) by community members that are trained before participation in field activities. The volunteer workforce that was created may be extremely useful in the current situation in which government funding for environmental projects is becoming scarcer.

Local landholders have been provided with a comprehensive chemical analysis of their groundwater and will be able that to use that information on the long term to assess whether their water is disturbed by mining operations.

Benefits for SCU have been the generation of external income (i.e., current NOROC and Rous Water research grants) and increased visibility in local, national and international media.

For the researchers, the project has resulted in the publication of a scientific paper in a top A* ERA listed journal helping to build SCU’s research portfolio in an emerging topic.

Awards Category

Community Impact

Good practice principles

Empowerment, trust, capacity building, research, mutual benefit, community need

Recognition

This project was the recipient of the Excellence in Community Engagement Award for Community Impact in 2013.

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