

**Submission  
No 373**

## **INQUIRY INTO COAL SEAM GAS**

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NSW Legislative Council  
General Purpose Standing Committee No 5  
Inquiry into Coal Seam Gas

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Moree is located in Northern NSW. The main industries are farming (dryland and irrigated cropped) and tourism (primarily the Moree Hot Spa Baths) – both of which are reliant on our water.

CSG Mining is only in the exploration stage in our area under Petroleum Export Licences 6, 470, 427 and 455. However, it is evident that the industry is progressing at a rapid rate, with government seemingly caught between community interests and a lucrative resource agenda.

The community is supportive of any industry that provides a long term positive cost-benefit to Moree. But it must not be at the risk to our natural water resources, or at the expense of our present long term core industries. At present, there appears little understanding of real impacts regionally and inadequate legislation and regulations.

Our concerns and recommendations on moving forward with this industry are presented below.

Thank you for the opportunity to give feedback.

## **ENVIRONMENTAL AND HEALTH IMPACT OF CSG**

### **Effects related to ground and surface water systems**

#### ***Shifting or Contamination of Water Aquifers***

The National Water Commission has estimated CSG Mining industry alone will extract more water than what is the current total extraction of all other industries

<http://www.nwc.gov.au/www/html/2959-coal-seam-gas.asp?intSiteID=1>.

Underground aquifers supply the township of Moree and its rural residents with drinking and household water. It is also vital for stock water, irrigation and feeds the Moree Spa Baths (a major tourist attraction for the town).

If shifting underground waters were to lead to our aquifers running low or dry, or aquifers being contaminated, it will destroy the Moree economically and socially.

Likewise, any resulting land subsidence would destroy large tracts of farming land.

These concerns are admitted by industry representatives as potential impacts that must be managed. <http://www.smh.com.au/environment/water-issues/coal-seam-damage-to-water-inevitable-20110802-1ia00.html>

#### ***Extracted Produced Water***

If the "extracted" underground water is known to be highly saline and toxic

<http://www.dip.qld.gov.au/resources/report/coal-seam-gas-water-discussion-paper.pdf>.

Escape of this saline water or residue brine through accident or negligence, will lead to:

- Permanent contamination of soils, such that they are made sterile and unproductive for cropping or grazing
- Deaths of Trees and Native Vegetation
- Seepage into local creeks and rivers, thus contaminating water supply used for drinking and other uses
- Death of Wildlife

Although the State Government has made announcements to ban evaporation ponds, this does not eliminate holding ponds, which would almost certainly be needed on well sites to be able to manage the logistics of carting the extracted water to a central holding pond. Holding ponds are tantamount to evaporation ponds – there is still the risk of ponds leaking, ponds overflowing during heavy rains and floods (which are not uncommon during summer), spillage directly onto land in the case of an accident and residue brine blowing across farming land from around edges of a pond and/or if a pond dries out.

### **Effects Related to Hydraulic Fracking**

The government's announcement to ban BTEX chemicals is welcomed but the evidence points to many other known and unknown unapproved chemicals that pose health risks.

The National Toxics Network (NTN) they found that:- [www.ntn.org.au/wp-content/uploads/2011/04/NTN-Fracking-Briefing-Paper-April-2011.pdf](http://www.ntn.org.au/wp-content/uploads/2011/04/NTN-Fracking-Briefing-Paper-April-2011.pdf)

- In 10 years time, fracking will be conducted in 80% of all wells
- Constituents of the fracking fluids were considered “trade secrets” and not revealed, so regulators were effectively unable to regulate
- the identifiable chemicals, which included BTEX chemicals (such as benzene, toluene, ethylbenzen and xylene) but also other hazardous chemicals (such as ethylene dylcol, formamide, naphthalene, ethoxylated nonylphenol and soldium persulfate) were considered of concern to our environment and health, with some linked to cancer and birth defects
- only 2 out of the 23 identified most commonly used fracking chemicals had been assessed by NICNAS (Australia’s industrial chemical regulator) and that neither of these 2 chemicals were specifically assessed for their use in hydraulic fracking.,
- the chemicals were being used in mixtures that increased their risks
- that they were being used in large volumes
- that they were being used in unknown concentrations for purposes they were never intended to be used for

### **Recommendations**

1. Prior to further development of this industry, benchmarking of our hydrology needs to be carried out as a priority by an independent technically competent body (such as Gas Industry Social and Environmental Research Alliance – GISERA). Such an assessment will provide a benchmark prior to drilling and can be used to help understand the real way that drilling impacts on water resources, the aquifer interference risks and any appropriate environmental rehabilitation securities. It could also inform later assessments of possible impacts on productive land and socio economic assessments.
2. Prior to further development of this industry and granting of any further extraction licences, fully independent, credible scientific research on CSG mining and fracking needs be completed to fill our knowledge gaps.
3. Serious consideration should be given to the banning of fracking (as has been done in France and certain US states)
4. Prior to further development of this industry, the criteria for obtaining and maintaining licence needs to be reviewed to take account of all environmental, social and economic impacts.
5. Prior to granting any extraction licence, independent research needs to be conducted on the environmental, social and economic impacts on a regional and local level.
6. Extraction licences should be denied in any areas where the study shows potential for significant and irreversible negative environmental effects and/or negative long term effects on a regional area.
7. All reports and processes used in the decision to grant an extraction licence must be public, including any changes to an extraction licence.
8. The licence approval authority should be independent – the government currently has the last say on State Significant projects – this is a conflict of interest.

9. The regulations and approvals on chemicals used needs to be more rigorous and controlled, given that these are potentially contaminating our water supply.
10. Water used must be paid for (as in other industries) to encourage minimisation of water extracted. But should not compete with irrigation water, as the effect of pushing up water prices to irrigators will only result in lost food production.
11. CSG companies, under the Rehabilitation and Environmental Management Process (REMP), should have to set up mining deposits prior to approval of developments (<http://www.dpi.nsw.gov.au/minerals/environment/petroleum/applying-for-petroleum-projects> and <http://www.dpi.nsw.gov.au/minerals/info/legislation-changes/environmental-management> ). The formula for this should ensure the deposit for each individual bore is sufficient to cover the genuine costs in the case of a negative environmental effect or disaster – this will mean it covers both indirect and direct costs. An example of a formula might be:
  - i. Number of bore licences (30 years X marginal return/ML X number of ML bore water irrigation licences which could be impacted by a specific bore i.e. a 30 km radius)
  - ii. PLUS Cropping/livestock area (area that could be potentially contaminated by extracted water through leaking/overflowing of ponds, trucks, pipes etc)
  - iii. PLUS Loss of amenity and land values due to potential contamination (per ha figure)
  - iv. PLUS normal formula for the environmental rehabilitation work.
12. A newly established independent CSG Audit Monitoring Authority, in conjunction with other relevant departments, should:
  - Field community and/or landholders reports on any environmental issues.
  - Conduct hydrology and other testing to measure against initial benchmark testing
  - Monitor other environmental aspects of the exploratory and extraction process eg: measuring methane gas leakage, drilling chemicals being used, adequate treating and disposal of extracted water, etc
  - Enforce regulations – the authority needs to have the power to issues fines that are large enough to deter bad practices and should also have the power to halt further extraction until an environmental breach has been corrected and/or revoke mining approvals for breaches.
  - Oversee the mining deposits
13. Legislate to give prosecutors and courts a wider range of ways to enforce environmental laws and discourage bad practices

And lastly apply the concept of **Reverse onus of proof** – it is up to the mining companies to prove they have not caused the damage.

## **ECONOMIC AND SOCIAL IMPLICATIONS OF CSG ACTIVITIES**

### **Legal Right of Property Owners and Property Values**

#### ***Landholders Right to say No***

Current legislation is unbalanced. Landholder rights are subservient to CSG Mining.

The CSG companies must negotiate an Access Agreement with the landholder in NSW but ultimately a landowner cannot deny a CSG company access. If a landholder goes to arbitration, the arbitrator will focus on what terms access should be granted, not if access should be granted.

#### ***Landholders Disadvantaged in Negotiation***

In negotiating these agreements, CSG companies are professional negotiators and landholders are at a distinct disadvantage. Unfortunately, CSG companies have proven they will play "dirty" (e.g.: we have reported instances in the Moree community of the CSG companies calling at 6 am and on the weekends and also sending out misleading, outdated information).

Landholders lack technical and legal experience, are generally not aware of their rights and do not have the financial resources to exercise and protect what little rights they have.

Unfortunately there is no advisory group for them to seek advice from.

#### ***Invasion of Privacy***

For farming landholders, the land is their home where they raise families.

With CSG Mining on property, there would be a significant increase in traffic and unknown individuals coming and going all day, increasing the risk:

- to personal property from vandalism or theft
- of "unsavoury" persons with regards children's safety
- to the health and safety of children should try to enter CSG sites
- to the health and safety of children, family and farm workers due to increased traffic.

Realistically, landholders cannot afford the resources and time to monitor every movement on our land and the activities of the CSG mining company.

Furthermore, with the increased risks, if something were to happen, the CSG companies would deny responsibility for any wrongdoing by their staff and it would be very hard to prove. The landowner would be left with the cost or worse (for examples, if something was to happen to children).

#### ***Fall in Land Values and/or Opportunity for increased Land Values***

Anecdotally, real estate agents report lower interest in CSG mining occupied properties and a fall in land values. This is logical considering the impact on farming practices & productivity, invasion of property rights and risk of environmental damages.

A fall in land values or lost opportunity for increased land values will:

- Destroy landholder's wealth and potentially financially cripple individual farming family businesses.
- Affect the confidence of landholders to invest, which would affect the prosperity of a town such as Moree and its businesses
- Affect the ability of a landholder to borrow and/or willingness of banks to lend, again which will affect the prosperity of Moree and its businesses

### ***Inadequate Compensation***

Historically, farmers have received little compensation considering the risks and lost productivity. Likewise, neighbours and others who may be negatively affected have received nothing.

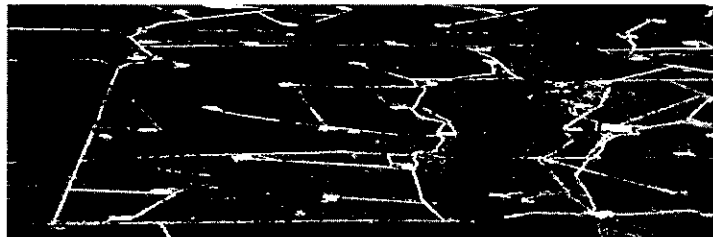
The compensation under the Mining Act 192 and Petroleum (Onshore) Act 1991 is not comprehensive enough – it does not cover the wide ranging direct and indirect effects above and under the ground.

Furthermore, in the case of a disaster, historically any mining deposits (or security) have been woefully inadequate to cover the true cost of ameliorating the damages have caused during mining. This is demonstrated in this story [www.abc.net.au/rural/news/content/201103/s3177384.htm](http://www.abc.net.au/rural/news/content/201103/s3177384.htm) where the deposit was not even a small percent of the landholder's immediate damages, let alone enough to cover environmental rehabilitation or ongoing loss of income.

### **Food Security and Ag Productivity**

Within the Moree community, many landholders believe it is not feasible for CSG mining and crop production to be done alongside each other on the same land. It will result in less land being farmed long term and lower productivity – hence less food security.

Wells can be placed across a property as little as 500 – 750 metres apart - this land is cleared and gravelled. A series of gravelled roads are constructed to every well. Land is dug up to connect pipelines to every well. Compressor stations are also required to be built. The maze created is seen in this aerial photo at Chinchilla.



The negative direct impact on farming and grazing land will be as follows:-

- ⚡ Well Sites:- gravelling will degrade our deep black self mulching soils, clearing will result in wind erosion due to lack of vegetative cover and these sites will become compacted by heavy machinery. As a result, these sites will never again be as productive for crop and pasture growth, irrespective of the rehabilitation taken out.

- ✦ Roads:-Likewise the gravelled roads will be compacted and soils degraded, thus will never again reach full production
- ✦ Pipelines: There will be subsidence where land is dug up for pipes, hence making this land prone to water accumulation and water logging. Subsidised land is far less productive as it cannot be effectively farmed.

There are also significant indirect negative impacts to farming productivity:-

- ✦ Controlled traffic farming is widely used around Moree, in recognition that it greatly improves farm efficiency and productivity. GPS mapping is used to map the lines for control traffic farming. The benefits are well supported by agronomic research (<http://www.controlledtrafficfarming.net/benefits.php>) and include:-
  - more yield by improving conditions for plant growth
  - More uniform grain
  - Compatibility with raised beds and alley farming
  - Less overlap
  - Lower input costs and greater accuracy of placing inputs
  - Reduced operating costs by lowering fuel usage, less time/labour, saving on seed, sprays and fertiliser, and improving efficiency (10-25% savings can be expected immediately)
  - Easier driving and less operator fatigue
  - Less fuel use and lower tractor power requirements
  - Application of inter-row technology
  - Improved timeliness of operations
  - Control of soil erosion and increased moisture retention, provided properly designed layouts are used
  - Better drainage and water logging control
  - Improved farming practices and opportunities due to easier management
  - Improved integration and management of precision farming tools and systems
  - Improved efficiency and effectiveness of all operations

The Grains Research and Development Corporation research states "The longer the tramline run, the greater is the efficiency of the system, as turns on the corners are kept to a minimum" (see

[http://www.grdc.com.au/director/events/researchupdates.cfm?item\\_id=AC900FF79F6CAF001BDEA6695DE84529&pageNumber=90](http://www.grdc.com.au/director/events/researchupdates.cfm?item_id=AC900FF79F6CAF001BDEA6695DE84529&pageNumber=90)).

By having to work around a maze of wells and roads, tram tracking is destroyed thus severely reducing productivity of land not directly occupied by CSG Mining, resulting in:

- Greater compaction due to more turns & overlap
- Higher operating costs as greater fuel usage, time/labour, seed, chemicals, sprays and fertiliser used due to more turns & overlap
- Reduced timeliness of operations, thus increasing farmer costs
- Harder driving and risk of operator fatigue working around objects requires greater driver concentration
- Greater water logging and poorer drainage
- Increased carbon emissions from overlapping



Furthermore, GPS mapping will have to be redone by the farmer every time a well is created, a well closed, the size of the well site changes, a road is constructed, a pipeline is laid etc. This is costly.

- ✦ Formed up roads and well sites will disrupt natural water flows and result in erosion as waters push along unnatural paths and pool of water (water logging).
- ✦ Contamination or shifting of underground water aquifers would be disastrous for grazing operations that could no longer water stock.
- ✦ Contamination of water quality may also mean meat is contaminated and thus cannot be sold into markets.

Many of the above will also have an affect neighbouring land, in particular the disruption of natural water flows.

### **Royalties Payable to the State**

Given the apparently large profitability of this industry and that much of the profits will end up offshore, it is questionable if CSG Mining companies should also have a 5 year holiday period on royalties.

### **Regional Development, investment and Employment**

The CSG wells, by the industry's own admission at the CSG Forum in Moree on 28<sup>th</sup> June, only have a 20-25 year lifespan.

However, agriculture and the Hot spa baths will provide base industries for Moree in the long term – their productivity cannot be risked.

It is worth noting that even the perceived risks of CSG mining may be detrimental to Moree. The threat of reduced land values and lower productivity, even now, is creating a level of uncertainty in our farming community. This uncertainty may eventually result in greatly lowering or halting landholder's willingness to make capital investment and reduce landholder's borrowing power.

There have been instances where CSG companies have approached landholders to drill and requested to set up a campsite for 15-20 people on the farm – this is not investing in the local town.

### **Local Government including provision of local/regional infrastructure and local planning control mechanisms**

#### ***Roads***

Associated with CSG mining, will be a significant increase in heavy vehicles and traffic on the local roads. However, the CSG mining companies do not pay rates towards the maintenance of these roads.

Landowners in the Moree Shire are already facing a 90% increase in rates over 3 years presently in the Moree shire. It is likely that in the future the rates would need to be raised again to cover the additional traffic on the roads and resulting maintenance. Why should the local ratepayers foot this bill?

## **OTHER CONCERNS**

### ***Health of the Community***

There are also many health concerns being raised in relation to CSG mining, as expressed by the Doctors for the Environment and Dr Theo Colburn in the US.

[http://dea.org.au/resources/file/dr\\_helen\\_redmond\\_on\\_health\\_and\\_coal\\_seam\\_gas\\_extraction](http://dea.org.au/resources/file/dr_helen_redmond_on_health_and_coal_seam_gas_extraction)

<http://www.endocrinedisruption.com/files/Oct2011HERA10-48forweb3-3-11.pdf>

### ***Buffer Zones around Homes***

Under current NSW legislation, a CSG must be only up to a maximum 50 m from a garden and 200 m from a house. This is a remarkably short buffer zone for a family who could be effectively surround in all directions with several wells only 200 m from their home. The NSW government however, seems reluctant to increase the buffer zone.

<http://www.theaustralian.com.au/national-affairs/barry-ofarrell-wont-follow-anna-bligh-on-buffer/story-fn59niix-1226115531942>

## **Recommendations**

- 1) Immediate regulatory change to halt the "fait accompli" negotiations between CSG Companies and landholders and allow for a pause or complete stop in exploration activities where agreement is not reached with the landholder.
- 2) Amend legislation to exempt common land use types (cultivation, improved pastures and irrigation land) from CSG Mining
- 3) Prior to further development of this industry, the criteria for obtaining and maintaining a licence should be reviewed to take account of all environmental, social and economic impacts.
- 4) Amend legislation to allow communities to have greater input into the granting of exploration licences and the ability to challenge a decision to award an exploration licence.
- 5) Extraction licences should be denied in any areas where a cost / benefit study of CSG mining in an area is negative to the community.
- 6) Implement regulatory and policy changes to even up the negotiating field between the CSG companies and landholders, by providing landholders access to experienced advisors who will protect their rights.
- 7) Amend legislation to allow payment of royalties to landholders. This would be a very effective way to maintain land values, as it provides the landowner with an income stream that is attached to the land and he can on sell with the land. It is also a way to ensure that some of the CSG mining monies is kept within the community and invested locally.

8) A complete review of just Terms Legislation. Expand the definition of compensation in the legislation to account for:

- All legal and access agreement enforcement costs of the landholder, prior to, during and after the extraction process
- Quality of the land lost – not all land is equal
- Effect on personal lives, including proximity to houses, loss of privacy, etc
- Effect on landholders business, including health and safety risks (including the CSG companies accepting full liability in case of an accident), loss of productivity and extra costs incurred on farming etc
- Decreased land values
- Lost opportunity and profitability (e.g. of increasing land values and land productivity)
- Risk of underground water impacts and other environmental impacts
- Impacts on neighbours

9) A newly established independent CSG Audit Monitoring Authority, in conjunction with other relevant departments to:

- Field community and/or landholders reports on any breaches by the CSG Companies on landholder rights and health concerns
- Oversee the mining deposits
- Enforce health regulations – it needs to have the authority to issue fines that are large enough to deter bad practices and it should also have the ability to halt further extraction until the environmental breach has been corrected and/or revoke mining approvals for breaches.
- Enforce land access agreements with CSG companies - it needs to have the authority to halt further extraction until the access agreement breach has been corrected and/or revoke mining approvals for breaches.

Thank you for the opportunity to give feedback to the enquiry.

Yours sincerely

On behalf of the MCCC-CSG  
Rebecca Reardon