

## **Submission: Protection of Prime Agricultural Land and Other Land from Coal Seam Gas Mining Bill 2013**

13<sup>th</sup> October 2013  
Michael David Moore  
Law Student, James Cook University

Agriculture, Resources and Environment Committee  
Ph: 3406 7908  
Fax: 3406 7070  
Email: arec@parliament.qld.gov.au

Under the Mineral Resources Act 1989, coal seam gas (CSG) mining is currently permitted under chapter 8, with minimal restrictions and safeguards. This submission is in relation to the Protection of Prime Agricultural Land and Other Land from Coal Seam Gas Mining Bill 2013 (henceforth referred to as 'the bill') introduced to Queensland Parliament by Mr Ray Hopper MP, Member for Condamine as a private members bill on 7 June 2013. My comments will focus on three key areas supporting the bill; the agricultural sector, the environment and public health.

As stated in Hopper's explanatory notes, this bill has been created to prohibit all CSG mining and exploration in a designated area within the electorate of Condamine.<sup>1</sup> The fundamental reasoning behind this bill is to 'protect prime agricultural land from CSG exploration to ensure the sustainability of the agricultural industry and food security into the future for all Queenslanders.'<sup>2</sup> Although Hopper's explanatory memorandum only attests to the protection of agricultural produce and geographical occupation of farming land, there are several other pertinent factors which must be considered to reinforce the urgent enactment of this bill. This submission will outline three key potential risks involved in the CSG process, these are risks to; the agricultural sector, the environment and public health.

### **Risks to the Agricultural Sector**

#### *a. Agricultural Land*

In the explanatory notes provided in conjunction with the bill, Hopper describes his electorate of

---

<sup>1</sup> Explanatory Memorandum, Protection of Prime Agricultural Land and Other Land from Coal Seam Gas Mining Bill 2013 (Qld).

<sup>2</sup> Explanatory Memorandum, Protection of Prime Agricultural Land and Other Land from Coal Seam Gas Mining Bill 2013 (Qld).

Condamine as 'prime agricultural land'.<sup>3</sup> This statement is easily justified. In the 2013 Queensland Agricultural Land Audit undertaken by the Department of Agriculture, Fisheries and Forestry, the Darling Downs area which encompasses the entire electorate of Condamine was classed A1 for agricultural land uses.<sup>4</sup> This was the highest rating for any agricultural land in Queensland meaning that the 'land is suitable for a wide range of current and potential broadacre and horticulture crops with limitations to production that range from none to moderate levels.'<sup>5</sup> Furthermore, in the 2011 census, 'Sheep, Beef Cattle and Grain Farming' was the highest employed industry in the Condamine electorate.<sup>6</sup> The wider Darling Downs area only occupies 6% of Australia's agriculturally viable farm land yet produces more than 22% of the nation's food, therefore making it one of the most valuable areas in Australia.<sup>7</sup>

Allowing a CSG operation to begin in the Condamine electorate would severely diminish Australia's agricultural land commodities. This consequently would cause a ripple effect throughout the entire country causing food importation and forcing job losses. This bill would protect the Condamine electorate from CSG operations allowing the land to continue to be the most fertile in Queensland.

#### *b. Water Competition*

The amount of water used in the CSG process in comparison with ordinary usage rates are at the least exorbitant. The majority of CSG operations would use water supplies from the Great Artesian Basin (GAB), this underground body of water covers 1,700,000 square kilometres and is the main fresh water source for the majority of the country.<sup>8</sup> The National Water Commission (NWC) projected that the CSG industry would use an average of 300 gigalitres per year in operations. To put this into perspective, the current water extracted for ordinary use from the GAB is 540

---

<sup>3</sup> Explanatory Memorandum, Protection of Prime Agricultural Land and Other Land from Coal Seam Gas Mining Bill 2013 (Qld).

<sup>4</sup> Department of Agriculture, Fisheries and Forestry, *Queensland Agricultural Land Audit Method – Technical Report* (23 May 2013) Queensland Government, 18  
<[http://www.daff.qld.gov.au/\\_\\_data/assets/pdf\\_file/0003/74829/QALA-tech-report-final-13.pdf](http://www.daff.qld.gov.au/__data/assets/pdf_file/0003/74829/QALA-tech-report-final-13.pdf)>.

<sup>5</sup> Department of Agriculture, Fisheries and Forestry, *Queensland Agricultural Land Audit Method – Technical Report* (23 May 2013) Queensland Government, 19  
<[http://www.daff.qld.gov.au/\\_\\_data/assets/pdf\\_file/0003/74829/QALA-tech-report-final-13.pdf](http://www.daff.qld.gov.au/__data/assets/pdf_file/0003/74829/QALA-tech-report-final-13.pdf)>.

<sup>6</sup> Australian Bureau of Statistics, *2011 Census – Condamine* (28 March 2013) Federal Government  
<[http://www.censusdata.abs.gov.au/census\\_services/getproduct/census/2011/quickstat/SED30023?opendocument&navpos=220](http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/quickstat/SED30023?opendocument&navpos=220)>.

<sup>7</sup> Dr Tina Hunter, *Food security v energy security: land use conflict and the law* (20 February 2012) Crikey (online)  
<<http://www.crikey.com.au/2012/02/20/food-security-v-energy-security-land-use-conflict-and-the-law/>>.

<sup>8</sup> Department of Environment and Resource Management, *The Great Artesian Basin* (February 2011) Queensland Government <<http://www.nrm.qld.gov.au/factsheets/pdf/water/w68.pdf>>.

gigalitres per year.<sup>9</sup> The NWC has also predicted that CSG operations will severely impact water pressures and water flows consequently affecting the efficiency of water extraction.<sup>10</sup> The potential for over usage of water is compounded by the fact that Australia is currently facing extreme drought conditions.<sup>11</sup>

In an amendment to the Environment Protection and Biodiversity Conservation Act 1999 (EPBCA) introduced into Federal Parliament on 13 March 2013, water resources in relation to coal seam gas and large coal mining development were deemed a matter of national environmental significance.<sup>12</sup> In essence, these amendments under sections 24D and 24E of the EPBCA mean that a CSG operation can not be given approval if the action: has or will have a significant impact on a water resource; or is likely to have a significant impact on a water resource.<sup>13</sup> As the GAB is one of Australia's most important water resources and the NWC has projected that any form of CSG mining would significantly impact the GAB, one could argue that the EPBCA should essentially block any CSG operations as it is likely to negatively impact the GAB.

Furthermore, the EPBCA relates to ecological sustainable development.<sup>14</sup> Realistically every principles in section 3A could be argued in favour of the enactment of the bill, however, this section will focus on section 3A(c). It states 'the principle of inter-generational equity--that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.'<sup>15</sup> This can be applied to the issue of CSG operations in relation to water consumption. It can be argued that if CSG operations were to commence, water intended for agricultural purposes would be over-consumed by CSG processes, consequently disadvantaging future generations of farmers. This bill would prevent the issue of water competition and allow farmers to use water for agricultural purposes.

Accordingly CSG operations can not be deduced as ecologically sustainable development and are therefore not in harmony with the objects of the EPBCA, whereas the bill introduced by Hopper is

---

<sup>9</sup> National Water Commission, *Position Statement – Coal Seam Gas and Water* (December 2010) Federal Government <[http://nwc.gov.au/\\_\\_data/assets/pdf\\_file/0003/9723/Coal\\_Seam\\_Gas.pdf](http://nwc.gov.au/__data/assets/pdf_file/0003/9723/Coal_Seam_Gas.pdf)>.

<sup>10</sup> Ibid.

<sup>11</sup> Edwin Farley, *Drought tightens its grip across Australia* (3 May 2013) ABC Rural (online) <<http://www.abc.net.au/news/2013-05-02/drought-bites/4665026>>.

<sup>12</sup> Department of Environment, *2013 EPBC Act amendment – Water trigger* (16 August 2013) Federal Government <<http://www.environment.gov.au/epbc/about/water-trigger.html>>.

<sup>13</sup> *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 24E(b)(i)-(ii).

<sup>14</sup> *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 3A.

<sup>15</sup> *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 3A(c).

parallel with these principles.<sup>16</sup> Moreover, in their 2012 report, the International Energy Agency concluded that CSG operations 'should be avoided in areas of water scarcity, in close proximity to densely populated areas, and/or in areas where it can impact on agricultural production.'<sup>17</sup> Along with competition for water increasing with the potential introduction of CSG operations, water contamination is also a realistic threat.

## **Risks to the Environment**

### *a. Water Contamination*

CSG operations use a process called hydraulic fracturing or 'fracking', this process 'injects large amount of fluids (water with chemicals and sand) at high pressures into rock formations to fracture them, enabling compounds such as gas that are held tightly inside to be released.'<sup>18</sup> The danger of this process is the possibility of these fracking liquids contaminating local water supplies. In the US, nonylphenol is a common component in fracking fluids. This chemical when leaked into waterways can mimic the female hormone oestrogen and can cause feminisation of fish. Essentially, this transforms all males of a particular species into females resulting in the inability to reproduce and a depletion of fish populations.<sup>19</sup>

Furthermore, in 2009 citizens' of Pavillion in the state of Wyoming, US complained of taste and odour issues with their water concurrent or after fracking operations had commenced in their area. An investigation was ordered and the Environmental Protection Agency concluded that samples taken from the contaminated sites had included;

1. High pH values;
2. Elevated potassium and chloride;
3. Detection of synthetic organic compounds;
4. Detection of petroleum hydrocarbons; and
5. Elevation of dissolved methane concentrations in proximity to production wells.<sup>20</sup>

---

<sup>16</sup> *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 3(1)(b).

<sup>17</sup> Fatih Birol et al, 'Golden rules of a golden age of gas, World Energy Outlook, Special Report on Unconventional Gas' (2012) *International Energy Agency*, 142.

<sup>18</sup> *Ibid* 143.

<sup>19</sup> New York Water Resources Institute, *Waste Management of Cuttings, Drilling Fluids, Hydrofrack Water and Produced Water* (21 March 2012) New York Water Resources Institute <[http://wri.eas.cornell.edu/gas\\_wells\\_waste.html](http://wri.eas.cornell.edu/gas_wells_waste.html)>.

<sup>20</sup> Dominic C. DiGiulio et al, 'Investigation of Ground Water Contamination near Pavillion, Wyoming' (2011) *United States Environmental Protection Agency Report – Office of Research and Development*, 33-39.

The effect on the water once it has become contaminated makes it unusable and therefore as useful as seawater. Although the possibility for water being contaminated through CSG operations is minimal<sup>21</sup>, one would assume that the government allowing CSG mining would be directly contravening the precautionary principle.<sup>22</sup> This general rule states that a 'lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage.'<sup>23</sup> Therefore, as there is some scientific uncertainty to the possibility of fracking fluids spilling into localised water supplies (although it has been documented in the US), the government must abide by the precautionary principle and not allow any further CSG operations. This bill would reinforce the precautionary principle by disallowing CSG mining and exploration until further research is undertaken to prevent water contamination. Although water pollution is major concern it must not be forgotten the ongoing potential pollutants being released into the atmosphere.

#### *b. Air Pollution*

In the process of CSG mining, it is inevitable that both methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) will escape and contribute to the increasing amount of greenhouse gas in the atmosphere.<sup>24</sup> Late last year in the Tara gas fields in Queensland, it was reported that both aforementioned gases and others were 'leaking up through the soil and bubbling up through rivers at an astonishing rate'.<sup>25</sup> Damien Maher, the biochemist who performed the testing stated; '[t]he concentrations here are higher than any measured in gas fields anywhere else that I can think of, including in Russia.'<sup>26</sup> This unnatural occurrence has been directly correlated with recent CSG operations, 'We suspect that depressurisation (fracking, groundwater pumping) of the coal seams during gas extraction changes the soil structure (i.e., cracks, fissures) that enhance the release of greenhouse gases such as methane and carbon dioxide.'<sup>27</sup> Due to the exorbitant amount of greenhouse gas being emitted due to CSG operations, the principles in section 3A and the precautionary principle in section 391 of the EPBCA must be considered. The enactment of this bill will reinforce these principles and significantly decrease the amount of greenhouse gases being negligently released into the

---

<sup>21</sup> Ibid 39.

<sup>22</sup> *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 391.

<sup>23</sup> *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) s 391(2).

<sup>24</sup> Global Environmental Alert Service, *Gas fracking: can we safely squeeze the rocks?* (November 2012) United Nations Environment Programme <[http://www.unep.org/pdf/UNEP-GEAS\\_NOV\\_2012.pdf](http://www.unep.org/pdf/UNEP-GEAS_NOV_2012.pdf)>.

<sup>25</sup> Ben Cubby, 'Methane leaking from coal seam gas field, testing shows', *Sydney Morning Herald* (online), 14 November 2012 <<http://www.smh.com.au/environment/climate-change/methane-leaking-from-coal-seam-gas-field-testing-shows-20121114-29c9m.html>>.

<sup>26</sup> Ibid.

<sup>27</sup> Ibid.

atmosphere. Additionally, the atmosphere is not the only thing to suffer from the noxious gases released in the CSG process, the greater public is also at risk.

## **Risk to Public Health**

### *a. Air Pollution*

Aforementioned, the by-products of CSG operations can produce toxic gases into the atmosphere; however, independent air samples have shown that these toxic effluvia can be harmful to the public too. Independent samples collected in the vicinity of nine CSG operations in the United States revealed a total of 22 toxic chemicals with four of them being identified as known carcinogens.<sup>28</sup> These pose a significant health risk to communities close to CSG operations. For example, the electorate of Condamine is home to over 50,000 residents.<sup>29</sup> To initiate a CSG operation in this electorate with such a close proximity of residents would be potentially harmful to public health. This bill will prohibit CSG operations from putting the residents of Condamine at risk of potentially deadly effluvia. Once again, the precautionary principle must be considered. Even if there is no documented risk of harm, the potential of harm placed on the public must initiate the precautionary principle.

## **Conclusion**

In summary, this submission has highlighted three potential risks which will be inevitably incurred if this bill is not enacted. The first was the risk to the agricultural sector, Hopper emphasised the potential occupation of prime agricultural land. As the Condamine electorate produces almost a quarter of the country's food, to initiate CSG operations on Condamine's fertile land would be deplorable. Further, the sheer amount of water that a CSG operation would exhaust is incomprehensible, crops and livestock would perish due to lack of water. Secondly, risks to the environment were explored. The threat of water pollution resulting from a CSG operation is more than real as documented in Wyoming in the US. Also, with our current level of carbon emissions the documented threat of air pollution is not welcomed. Thirdly, the risk to public health must be taken into consideration. If no other aforementioned risk has forced the enactment of this bill, the risk to Australian citizen's health should compel decision makers to stand up and take notice.

In conclusion, the risks of CSG operations around the world have been attested to time and time

---

<sup>28</sup> Citizen Investigation of Toxic Air Pollution from Natural Gas Development, *Toxic Air Pollution from Natural Gas Development* (June 2011) Global Community Monitor <<http://gcmonitor.org/downloads/gassedreport.pdf>>.

<sup>29</sup> Above n 6.

again. To initiate such an operation in Australia's agricultural food bowl would be lamentable, wasteful and unintelligent. This bill, should it be enacted, will be a ground breaking victory for Queensland farmers and a reality check for mining companies.