

## **Submission to Inquiry into the impacts of CSG mining in the Murray Darling Basin**

To: Senate Standing Committee on Environment, Communications and the Arts

From: Bernie Caffery,

### **Background**

I have a degree in agriculture and have been working for 30 years as a Crop Management Consultant in the Dalby area of the Darling Downs. I come from a farming background and I have 3 brothers who are farmers.

### **Submission**

As a Crop Consultant I believe that the **water supplies and quality plus environmental and agricultural productivity** of the alluvial flood plains at the headwaters of the Murray-Darling are going to be **under severe threat from present and future Coal Seam Gas (CSG) extraction because:**

1. **Firstly in relation to the CSG.** This is a new industry which is going to have an extremely widespread and rapid impact over most of the coal belt of Queensland and New South Wales. These are also our most productive agricultural lands.
2. There has been no strategic long term planning to protect the environment and conserve our water resources or the very productive alluvial flood plain land. **Mining and crop production are not compatible. The alluvial flood plain farming land can only be used exclusively for agriculture; otherwise its productivity will be severely reduced.**
3. **Never before in the history of mining in Australia has one type of mining grown so quickly and so widespread, many CSG companies from Moranbah to Gunnedah. The gas will be extracted in 40 years; our productive farming land will be needed for food production for 40,000 years+.**

4. Most town's water supplies plus irrigated agriculture and livestock on the Darling Downs are dependent on groundwater supplies for their future. Any severe effects on the quality or quantity of these aquifers would have disastrous consequences to these communities. **CSG extraction is simply just not compatible with irrigated agriculture especially in the Condamine Alluvial Aquifer area i.e. the alluvial flood plains from Warwick to Chinchilla**
  
5. Because the CSG industry is less than 5 years old, there has been insufficient time to quantify the real the impacts on the surface and ground waters plus agriculture in general. **Even elementary knowledge tells us that pumping up millions of tons of underground salt (the major hazard to agriculture and the Murray Darling river system) has to be an extreme risk to the environment.**
  
6. Regarding pumping up extremely large amounts of CSG water, the QGC Environmental Impact Statement for the Queensland Curtis LNG Project Vol 3 Ch 10 provides limited information on salty water volumes but enough for us to **estimate that over 40 years approx. 1,800,000 million litres of salty water is going to be pumped to the surface**, then assuming 3,000ppm salt this equates to **approx 54 million tons of extra salt in the environment, ---- but the EIS overall assessment is that "it will have minor impact" ????** Page 23
  
7. Page 22 Vol 3 Ch 10 outlines the mitigation measures *that may be undertaken* as part of the gas company's *make good provisions for any detrimental effect to someone else's water bore in terms of quantity or quality of the water*. Well --- the acid test would be putting in the words – the CSG company - ***will restore the bore, will provide alternative water and will provide monetary compensation for loss of agricultural productivity***. Then it would be clear as to how confident the gas companies are about the impacts being only minor.

8. Since beginning, the CSG industry has made very little real advancement in the treatment of the salty coal seam gas water or reinjection down the wells. Now they want to increase production to many millions of megalitres and there is still no satisfactory proven way for safely dealing with these massive amounts of salty water especially in alluvial flood plains areas.

## **Summary re CSG Industry Impacts**

With so many potentially detrimental impacts to the agricultural productivity and the environment of the Murray-Darling Basin from the enormous volumes of salty water, and the possible depletion of alluvial aquifers from CSG extraction. **The cumulative water volumes and salt from several companies and thousands of gas wells is unknown.**

There needs to be a 10 year period of regulated development, whilst only supplying the domestic gas market. During this period the full impacts of this new CSG industry could be carefully monitored and fully understood. The extremely large gas industry needed for exporting LNG needs to be based on good science and experience.

**CSG extraction should certainly not be allowed to expand onto the flood plains, especially the groundwater irrigation areas such as the Central Condamine Alluvium Area of the Darling Downs, and put at risk this major food bowl area of Queensland and Australia.**

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## **Background**

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## **Submission**

As a Crop Consultant I believe that the **environmental values and the agricultural productivity** of the alluvial flood plains at the headwaters of the Murray-Darling **are going to be under severe threat from any coal mining operations**, both open cut and longwall mining because:

- 1. We cannot afford to lose any prime agricultural land because – “Global Food output must rise by 110 per cent in the coming 40 years” from the UN Environment Program source: Prof Julian Cribb, “The Coming Famine”**
2. Mining and crop production are not compatible. The alluvial flood plain cropping land can only be used exclusively for agriculture; if it is mined, the land’s productivity will be severely reduced or destroyed.
- 3. No one has been able to or will ever be able to rehabilitate prime agricultural soils to a level to match their former production capacity.**
4. The prime Darling Downs self mulching cracking clay soils of the alluvial food plains are very productive because they are very fertile, up to two metres deep and have a high water holding capacity. As an experienced Agronomists I would like to make it clear that these alluvial cropping soils which nature has laid down layer by layer over millions of years,

cannot be mined and supposedly rehabilitated without destroying the microbial activity, soil structure, porosity and water holding capacity that make them so very productive.

5. The flood plain soils have subsoil salts which are now not affecting plant growth but if the land was mined, then these subsoil salts would inevitably be mixed with the fertile topsoil and consequently economic crop production would not be possible. Also these salts would be leached into the waterways and then add to the salt load of the Murray-Darling River system. **Coal washing also adds extra salt to the land and the river systems, plenty of evidence of this in Central Queensland.**
6. Alluvial flood plains can be successfully used for cropping provided there is good surface drainage of rainfall runoff; but any activity which impedes the natural surface water flows such as subsidence caused by longwall mining will drastically reduce crop production because of waterlogging.
7. Australia's most productive long term asset is our prime agricultural land, and here on the Darling Downs we have some of the best volcanic and alluvial soils in the world. Grain crops such as wheat, barley, corn and sorghum plus legumes (chickpeas, soybeans and mungbeans) and also cotton, can all be grown very successfully.
8. **Queensland has extensive deposits of coal, up to 300 years supply, so there is no need to be mining our most productive cropping lands.**
9. Strategic long term planning is needed to preserve our most productive farmlands, so they continue to be the food bowl areas for Australians and the world. Only about 3.5% of Queensland is arable farming land and of this approximately half, (1.7% of the State) is prime agricultural land.

10. The current Government needs to act now to ensure that the proper planning is in place for future food production. This planning needs to identify all the prime agricultural land and legislate to protect it. This type of government land use planning occurs with National Parks – no one is able to mine these areas, the same should apply to prime agricultural land.
  
11. I like all reasonable people believe that urgent changes to legislation are needed to find a sustainable balance between farming, mining and energy production. Secondary industry people, farmers and even miners are saying it is not right, something has to be done, they know that their food and prosperity has come from our prime farmlands, they also know their children's livelihoods will come directly or indirectly from the same lands.
  
12. I acknowledge that coal mining and gas extraction industries, provide financial and employment benefits to the prosperity of our State. We also appreciate that by legislating against the mining of prime food producing land, there will be missed short term financial opportunities, but these short term financial gains from mining will be far outweighed by the long term sustainability of our future food supply and exports for thousands of years.

## **Summary re Coal Mining Impacts**

Not only is there no new farming country available anywhere in Australia, some companies are mining and more want to mine our most highly productive farmlands in the country. Prime agricultural land such as the alluvial flood plains, can be conserved for long term food production, or it can be mined over a few decades for the energy beneath it, but the land cannot provide both.

**The Darling Downs coal reserves have been targeted because they are shallow, easy and lower cost to mine.**

Open cut mining of cropping land means making the soil no longer useful for crop production forever; it is simply totally devastating to agricultural productivity. With so called rehabilitation it may become at best second rate pasture or forestry land. Underground longwall mining is less damaging but there are no examples of mined flood plain cropping land being restored to its former productive state anywhere in Australia.

As well as the loss of cropping land, any mining affects flood plain water flows, risks damaging the underground alluvial aquifers and adds salt to the river system.

If the agricultural land is taken out of production, where is the required doubling of food production in the next 40 years going to come from? Queensland has massive coal reserves under less productive land, so the decision is straight forward, **easy coal now, or a future food supply???**

**I do not know of anyone volunteering to go hungry if the Darling Downs food bowl is mined.**