

**Submission  
No 804**

## **INQUIRY INTO COAL SEAM GAS**

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## CSG Inquiry

Given the lack of understanding and knowledge of the impacts of coal seam gas (CSG) extraction on ecosystems, ecosystem function and the subsequent impact on agriculture and climate change the long term and short term effects of extraction should be subject to extensive scrutiny before the industry is developed beyond the current level. We have a unique opportunity to examine all aspects of this emerging industry at the embryo to ensure that the planning and approval process considers all aspects of the impacts of this industry.

My major concern is in regards to the impact of CSG extraction on water resources. While there are variations in ground water interactions between regions there are some basic principles that apply generally:

- There is a degree of connectivity between aquifers. The degree varies.
  - o The Namoi Water Study will be crucial in developing a knowledge base in this area for that valley.
  - o The degree of connectivity between alluvial aquifers and hard rock aquifers needs to be determined.
- There is a relationship between ground water and surface water flows.
  - o The National Water Commission, Dr Rick Evans and others have published material supporting this connection.
- If alluvial aquifers are drawn down below a critical level they will collapse and they cannot be regenerated. That critical threshold is not known at present.
- Recharge systems can vary but in the Namoi it can be established that the majority of recharge occurs from the top either through rainfall or surface flows (flooding). Rainfall is applicable to the ridge country above the floodplain; however the major recharge events occur through surface flows over the flood plain.

Monitoring data published by NSW Office of Water shows that the last major recharge event in the Namoi occurred in 1974. Since that date the trend in aquifer levels is down. While the water sharing plans for ground water were designed to reverse that trend it is too early to know if there will be an upward trend as the plans take effect. The difficulty is that the ground water and surface water plans were developed separately. Given the connectivity between the two this has resulted in some double accounting. Now that it has been established that surface water flows are dependent on ground water the impact of interference must be fully understood.

The draft Namoi Catchment Action Plan has set a lower threshold for surface water flows at 66% of natural flow to maintain ecosystem function. Aquifer interference will put pressure on this threshold and could tip the system into an undesirable state.

The planning and approval process is struggling to cope with the impacts of the rapid expansion of extractive industries. This applies to approval of the projects, approval of the necessary infrastructure and approval of community development to cope with an expanded workforce. Drawing lines on maps to designate go/no go areas is not an appropriate planning methodology. The need is to assess all the assets in a catchment of a region and then assess the impact of the proposal against the known assets. The assets include economic assets, social assets and environmental assets. Economic assets include agriculture.

For these reasons it is prudent to develop our knowledge base prior to the development of both CSG extraction and other extractive industries. There are a number of actions that need to be undertaken to develop the knowledge base in order to inform the approval process:

- Completion of the Namoi Water Study;
- Development of a suitable methodology to assess cumulative impacts of development;
- Development of a methodology to assess catchment assets.

Development of an assessment and approval process to cope with these issues in the future will take time, money and effort. However in the long-term interest of both the community and the economy it will be necessary to commit resources to the development of an effective planning and approval process that can cope with the new and emerging challenges we and future generations are facing. The minerals and energy sources are not going to go away, they will still be there when we have a better understanding of how to extract them and the long term effects of the activities necessary to extract them.