Submission No 450

INQUIRY INTO COAL SEAM GAS

Organisation: Cotton Australia

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Submission to the Legislative Council's General Purpose Standing Committee No. 5 Inquiry into Coal Seam Gas

September, 2011

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COTTON AUSTRALIA
Advancing Australian Cotton

INQUIRY INTO COAL SEAM GAS
TERMS OF REFERENCE

That General Purpose Standing Committee No. 5 inquire into and report on the environmental, economic and social impacts of coal seam gas (CSG) activities, including exploration and commercial extraction activities, allowable under the NSW Petroleum (Onshore) Act 1991 (the Act), and in particular:

1. The environmental and health impact of CSG activities including the:
    a. Effect on ground and surface water systems,
    b. Effects related to the use of chemicals,
    c. Effects related to hydraulic fracturing,
    d. Effect on Crown Lands including travelling stock routes and State forests,
    e. Nature and effectiveness of remediation required under the Act,
    f. Effect on greenhouse gas and other emissions,
    g. Relative air quality and environmental impacts compared to alternative fossil fuels.

2. The economic and social implications of CSG activities including those which affect:
    a. Legal rights of property owners and property values,
    b. Food security and agricultural activity,
    c. Regional development, investment and employment, and State competitiveness,
    d. Royalties payable to the State,
    e. Local Government including provision of local/regional infrastructure and local planning control mechanisms.

3. The role of CSG in meeting the future energy needs of NSW including the:
    a. Nature and extent of CSG demand and supply,
    b. Relative whole-of-lifecycle emission intensity of CSG versus other energy sources,
        c. Dependence of industry on CSG for non-energy needs (eg. chemical manufacture),
    d. Installed and availability costs of CSG versus other stationary energy sources,

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e. Proportion of NSW energy needs which should be base load or peaking supply and the extent to which CSG is needed for that purpose,
f. Contribution of CSG to energy security and as a transport fuel.

4. The interaction of the Act with other legislation and regulations, including Land Acquisition (Just Terms Compensation) Act 1991.

5. The impact similar industries have had in other jurisdictions.

Cotton Australia

Cotton Australia is the key representative body for the Australian cotton growing industry. It helps the industry to work together to be world competitive and sustainable, and also tell the good news about the industry's achievements. Cotton Australia determines and drives the industry's strategic direction, retaining its strong focus on R&D, promoting the value of the industry, reporting on its environmental credibility, and implementing policy objectives in consultation with its stakeholders.

Cotton Australia works to ensure an environment conducive to efficient and sustainable cotton production. It has a key role in Best Management Practices (MyBMP), an environmental management program for growers. This work has seen a significant improvement in the environmental performance of the industry, with huge improvements in water use efficiency, significant reductions in pesticide use, and millions of dollars invested into R&D.

The Australian cotton industry directly employs thousands of Australian's and this year will contribute over $2 billion to the Australia economy, with more than half of this occurring in NSW.

Cotton Australia welcomes the opportunity to provide this submission to the Legislative Council's General Purpose Standing Committee No. 5 Inquiry into Coal Seam Gas.

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Cotton Australia is a member of the National Farmers Federation, the National Irrigator's Council, and the New South Wales Irrigators Council.

Many of these organisations will also be making submissions to the Inquiry, and while Cotton Australia is confident that these submissions will reflect the views of Cotton Australia, if there is any divergence of views expressed then Cotton Australia's position is the one outlined in this paper.

General Comments

Traditionally, although there has been some significant exceptions, mining activity in Australia has occurred away from the highly fertile and intensively farmed areas of the Australian cotton industry.

However, in recent years, the rich, dark floodplain soils of the Australian cotton industry have increasingly attracted the attention of a wide range of mining ventures including coal mining and coal seam gas (CSG) extraction.

Cotton Australia has been an active observer of the expansion of the CSG industry in Queensland over the past decade, and is anxious to ensure that as the NSW industry expands, it does not repeat the same mistakes that have been made (and in some cases are still being made) in Queensland.

Much of the Australia cotton industry is based on the black soil plains of North-West NSW, and this is where significant CSG exploration is also occurring, with the expectation that a large extraction industry will follow.

Currently we are seeing the CSG and cotton industries intersecting in areas such as Moree, Terry Hie Hie, Gurley, Bellata, Narrabri, and Gunnedah, with exploration licences covering a huge swathe of NSW.

Much of the area covered by exploration also contains the extremely important sub-artesian aquifers of the Lower Gwydir, and the Upper and Lower Namoi.

Attached to this submission is a draft Cotton Australia Coal Seam Gas policy. While the draft policy is going through a final amendment and ratification process

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which may see some minor changes, Cotton Australia is happy to present it to the Inquiry as Cotton Australia's position.

In summary, Cotton Australia believes the CSG industry must be regulated to:

1. Protect the quantity, quality and reliability of Australia's water resources, in particular the sub-artesian aquifers and surface water sources that underpin the cotton industry.
2. Protect high quality agricultural land, to ensure that Australia can continue to maximise its ability to meet increasing global demand for food.
3. Ensure, that when position 1 & 2 are satisfied, landholders can be adequately recompensed for all the impacts that the CSG industry have on their land, businesses, lifestyle, safety and social amenity.

Cotton Australia is also an active participant in a number of other policy developing processes including the National Farmers Mining & Coal Seam Gas Taskforce, and the NSW Irrigators Council Mining and Coal Seam Gas Reference Committee.

It is important to note that Cotton Australia is not opposed to the CSG industry, and indeed recognises that it offers many positive economic benefits to not only the country as a whole, but also to our regional and rural communities.

However, just as the cotton industry must work within a framework that ensures its long-term sustainability, and the sustainability of the environment it operates in, Cotton Australia expects the CSG industry to work within a framework that not only ensures that the cotton industry can continue to prosper alongside the CSG industry, but will have the land, water and soil resources to thrive long after the CSG industry has moved on.

Cotton Australia would appreciate the opportunity to present to the Inquiry at its convenience.

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Some Thoughts From Queensland

The Queensland Coal Seam Gas Industry is currently focused in the Surat and Bowen Basins, with activities including domestic production, exploration, and export industry development occurring in areas such as Roma, Chinchilla, and Dalby.

Estimates of the potential size of the industry varies enormously, with some suggesting that it may lead to 40,000 wells, producing billions of dollars' worth of gas, and bring to the surface up 350Gl of water. Other estimates put the water production closer to 150Gl.

The gas is largely contained in beds that form part of the Great Artesian Aquifer, but in some cases the beds are also located under sub-artesian aquifers such as the Condamine Alluvium.

The country ranges from poor quality grazing country, to higher quality farming land, to prime irrigated agriculture farming land which overlays the Condamine Alluvium.

The Queensland Government as an announced Strategic Cropping Land Policy (it is yet to be enacted), which in principle protects approximately 1% of Queensland.

However, the SCL Policy is considered unlikely to protect prime agricultural land from CSG extraction as one of the criteria is that the activity must cause permanent alienation of the land for in excess of 50 years, and it is likely that the CSG companies will argue that they will be able to restore the land within this timeframe.

In terms of protecting the water resources, CSG extractors are not required to have a water entitlement to cover the water being extracted as part of the CSG activity.

This puts them at odds with all other users who are subject to water entitlements.

The Queensland Government is focusing its efforts on modelling likely impacts on the water resource and requiring companies to enter into "make good" agreements

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with landholders to ensure continued access to water. In principle these agreements need to be in place prior to any impact being detected.

Queensland is currently grappling with the best way to dispose/use the co-produced water, which could include new beneficial use, re-injection into aquifers or substitution for other water use.

Land access arrangements appear to be similar to NSW, providing landholders no ultimate right of refusal of access, and only limited avenues for compensation.

Cotton Australia argues that the current water management framework for the Queensland Coal Seam Gas industry is inadequate, and lacking legislative rigor, there is no effective protection offered for prime agricultural land, and the compensation agreements are inadequate.

Cotton Australia submits that the NSW Government should learn from these shortcomings, and provide greater regulation of the industry in NSW.

Managing the Coal Seam Gas Industry Better in NSW

In New South Wales, the legislative and regulatory framework of the CSG industry is being reviewed following the recent election of the NSW government.

However, in NSW the Water Management Act 2000 has a significant role to play with all extractions of CSG water, requiring water access licences; and a detailed aquifer interference regime is being developed. Cotton Australia looks forward to actively reviewing this policy when it is released.

Cotton Australia sees the following as the key risks/issues associated with water that surround the CSG industry:

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- Falling pressures and/or volumes in the sub-artesian aquifers, resulting in reduced access for domestic, urban, stock, irrigated agriculture and other industrial use.
- Quality contamination risks to aquifers – CSG activities resulting in declining quality levels in overlaying aquifers.
- The safe, economic and environmentally sustainable disposal/re-use of water extracted as a by-product of the CSG industry – this includes the safe disposal of "brine" or further by-products that result from the treatment of CSG extracted water.

The risk of falling pressure levels/volumes in over-laying aquifers has to be seen in the context of the very significant reforms that Australian agricultural groundwater users have undergone over the past decade.

Almost universally, irrigators have seen significant cuts in their groundwater entitlements and annual allocations, to ensure the long-term sustainability of their aquifers.

In short, governments have consistently said to irrigators (and other water users) you must reduce usage if we are going to have sustainable aquifers. Irrigators have accepted this, and in many cases their access to groundwater has been reduced by in excess of 50%.

Therefore, not only does it make no sense, but it is an insult to those who have undergone the pain of reform, to allow the CSG industry to put the sustainability of those aquifers at risk, without adequate safeguards.

Cotton Australia would support the following actions to protect against the risks identified above:

Falling pressures and/or volumes in the sub-artesian aquifers, resulting in reduced access for domestic, urban, stock, irrigated agriculture and other industrial use

This risk of this occurring could be minimised by ensuring all water extractions are made under the conditions of the NSW Water Management Act.

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Under this scenario, any depletion of the sub-artesian aquifers would have to be against a corresponding access licence which was issued in accordance with the appropriate water resource management plan.

While this should have the affect of minimising any unplanned reduction in the aquifer, it may mean the amount of water available for agricultural use could decrease as the most likely avenue of obtaining an aquifer access licence would be through the market.

However, there are a number of avenues that may off-set the amount of access licencing required.

One option would be to allow substitution. That is the CSG companies would extract water as part of their process, treat it to an agricultural use standard or better, and supply it to irrigators who currently source some or all of their water from a sub-artesian aquifer.

The irrigator would then substitute sub-artesian water use for the treated water, reducing the pressure/volume impact on the sub-artesian aquifer.

This approach should be relatively easy to adopt, however, like most things it would have to be done within the framework of a well thought out policy structure.

Another alternative would be for the water extracted by CSG to be re-injected into the CSG aquifer, maintaining pressure in this aquifer, and therefore reducing the risk of increased downward water movement from the sub-artesian aquifers.

The feasibility of this option has not been fully tested, and there certainly are some practical limitations. The most obvious is that CSG extraction relies heavily on the reduction in pressure the CSG aquifers, so re-pressuring them while extraction is still occurring would be counter-productive.

However, it may work if as the CSG extraction moves across a region, the water is used to re-pressurize the CSG aquifers after gas extraction has ceased in that particular sector.

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Both these models would require extensive monitoring and evaluations systems, which would detect any early negative impacts on aquifers, and most importantly a pre-existing plan by government on how it is going to act to reverse any negative effects if an early trend is detected.

Cotton Australia is aware that there are a number of proposals to use CSG water to create additional irrigation and use opportunities.

And while this may initially appear attractive, Cotton Australia believes the focus should be on trying to maintain a sustainable water balance, rather than encouraging new use.

Cotton Australia is strongly opposed to the:

- release of treated or untreated CSG water into natural streams, even during high dilution opportunities.
- evaporation of CSG water as a disposal option.
- use of CSG water to support "new use", when there are other feasible options which help sustain the existing water balance.
- Use of "fraccing" technology due to the greatly increased risk of chemical contamination of the aquifers

Cotton Australia strongly believes that the existing conditions imposed on CSG companies for exploration and extraction are entirely inadequate to ensure the protection of groundwater aquifers, and there is an urgent need to review the adequacy those conditions from within a framework where the long-term protection of the aquifer is paramount.

While this is occurring, all exploration and extraction activity should cease on land which overlays significant production aquifers.

While Cotton Australia's greatest concern focuses on the sustainable protection of production aquifers, it is also concerned about the impact of CSG mining on the property rights and values of landholders.

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There is significant anecdotal evidence that CSG activity on a property reduces, rather than enhances that property's financial value.

Further, it significantly impacts on the ability of the landholder to fully enjoy the social amenity of the property.

Currently, landholders are at a significant disadvantage, as they do not have any right of veto over a CSG company carrying out mining activities, because the ownership of the resource rests with the Crown.

This gives the CSG companies a huge advantage when it comes to negotiating land access agreements with landholders. The CSG companies know that at the end of the day they cannot be denied access and if they wish to pursue access by purely following the legal minimum requirements, they will gain access at a minimum cost.

Ideally, to equalise negotiations landholders should be given an ultimate power of veto. If this is not possible, government's should require CSG companies to compensate landholders to a level that does not just recognise the strict loss of production capability caused by their activities, but also compensates for the overall inconvenience to their operation and the alienation from their land.

Compensation agreements should include annual payments, tied to the land. This should go some way towards underpinning the value of properties.

Ideally, compensation should be at a level where a reasonable landholder would see CSG activities on his or her land not as an intrusion, but as a valuable source of diversified income.

Cotton Australia cannot understand the headlong rush of the CSG industry seeking to extend their activities across some of Australia's most valuable cropping land, with the active support of State governments who must of course issue exploration and extraction licences.

While Cotton Australia is no expert on the spread and size of CSG reserves, its limited knowledge suggest that there are adequate reserves in areas overlaid with

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secondary quality agriculture land to allow at least initial developments to occur on that country.

The situation in NSW is not clear, with the coalition government in the midst of developing its strategic regional land use policy. Once this is finalised, there should be greater clarity on the degree of protection given to highly productive cropping land.

To provide time for this to occur, and for Australia to fully debate the merits of mining verus food and fibre production Cotton Australia believes there is a strong case for a moratorium to be placed on mining developing on first class cropping land.

As stated from the outset Cotton Australia is not opposed to the sustainable development of a CSG industry. Cotton Australia is also mindful of the fact that many of our regional towns that rely strongly on traditional agriculture need to diversify their economic base if they are to survive.

CSG may offer that diversification, but it can't be allowed to develop if it is at the cost of maintaining sustainable water and land resources.

Some Thoughts on Commonwealth Involvement

The Commonwealth now has a significant legislative interest in the management of water resources across the Murray-Darling Basin through the 2007 Water Act, and the development of the Murray-Darling Basin Plan, however, the Water Act specifically excludes coverage of the ground water that forms part of the Great Artesian Basin (GAB).

This exclusion is highly relevant as it has been strongly argued that the waters primarily associated with CSG mining are contained within the GAB, rather than the sub-artesian aquifers that overlay the GAB.

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However, the exclusion of the GAB by the Water Act should not be seen to totally absolve the Commonwealth of responsibility and influence in the area of CSG water management.

Firstly, there does still appear to be some argument as to whether the water within the CSG seams is always within the GAB, or whether in some instances the CSG seams are within sub-artesian aquifers, and therefore subject to the Water Act.

Further, and possibly more importantly, there can be no doubt that there is always some level of connectivity between the GAB and the sub-artesian aquifers. The degree of that connectivity will vary widely, from very low levels of connectivity to very high levels of connectivity.

Where connectivity exists it is axiomatic that as the pressure levels are reduced in the CSG aquifers, there will be an increased tendency for the rate of downward movement of water from the upper sub-artesian aquifers to increase towards the CSG aquifers.

Further, the physical process of CSG extraction, be it drilling, "fraccing" or other activities may actually physically damage the separation between the aquifers increasing the risk of upward movement from the GAB aquifers into the sub-artesian aquifers.

As a general rule the quality of water in the GAB, particularly waters associated with the CSG aquifers is of significantly lower quality than the waters of the sub-artesian aquifers. Therefore this upward movement could lead to water quality deterioration in the sub-artesian aquifers.

So we have a situation where artificial legislation specifically separates over-laying water sources, yet those water sources are naturally connected, and the level of that connectivity can be altered by human activity.

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Appendix 1:

Draft Cotton Australia Draft Coal Seam Gas Policy

Version 1

August 2011

Summary

Coal Seam Gas (CSG) extraction is a rapidly expanding industry in Queensland and New South Wales. Its activities overlaps cotton production in many areas of Central and Southern Queensland and North-West NSW.

In developing its CSG policy Cotton Australia recognises that the CSG industry is a legitimate industry which offers significant economic benefits to Australia.

However, without proper regulation and enforcement the CSG industry also poses significant risks to the Australian Cotton Industry.

Cotton Australia's CSG Extraction Policy seeks to:

- ***Protect the sustainability of sub-artesian aquifers that underpin irrigated cotton production.***

    - Where there is any possible impact on a sub-artesian aquifer all possible steps are to be taken to maintain the "water balance" and water quality.
        - The preferred method for maintaining the water balance is re-injection (where technically feasible).
        - Substitution should be used where re-injection is not technically feasible.
        - Water used for substitution must be treated to a level where it can have no negative impact on water or soil quality.

    - Where there can be no likely impact on sub-artesian aquifers, "beneficial use" including new irrigation development should be encouraged.
    - Evaporation or release to streams should not be considered as a disposal strategy, except under exceptional circumstances.
    - All water use should be accounted for within the State's water licencing framework **(This may not be appropriate for QLD).**
    - An independent and comprehensive quantity and water quality monitoring, evaluation and reporting network must be funded by the CSG companies, to identify any early impacts on either quantity or quality of the water resource contained within sub-artesian aquifers. This would include the requirement for a comprehensive baseline assessment.
    - All construction, installation and operation of CSG infrastructure must be of the highest standard.

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- Ban the use of “fraccing” in any area where is use poses a risk to sub-artesian aquifers.

- ***Protect high value agricultural land from CSG extraction activities.***

    - That there should be a moratorium on CSG exploration and development on all country that would meet the soils criteria for SCL (QLD). The moratorium should remain in place until it can be definitively proven that CSG activities do not cause permanent alienation of the land.
    - That in NSW CSG exploration and extraction should not be allowed on prime agricultural cropping land (the definition of prime agricultural cropping land to be determined by government after extensive public consultation).

- ***Enhance landholder rights, to ensure access and compensation agreements are fair and equitable.***

    - Strengthen land access and compensation arrangements in both States to ensure all real losses are compensated for.
    - Allow compensation arrangements to include an element of “return” on the resource; that is a share of the production that is generated from an activity.

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Background

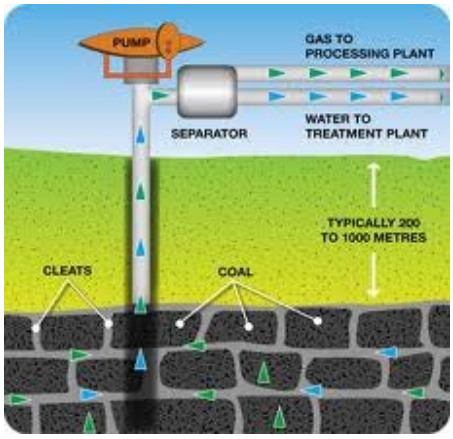
The CSG industry is based on extracting coal seam gas or methane, which is trapped within coal bed layers, which are commonly found within the Great Artesian Basin (GAB). Bores are sunk into these coal beds, allowing the gas to be pumped to the surface.

A by-product of this activity is that water is also released with the gas. The quantities of water released vary significantly, and typically there is greater water production in the early stages of gas production from a well, which tapers off over time.

There is greater gas production as the removal of water de-pressurizes the coal beds. Typically, the water removed is of poor quality and highly saline.

Wells are set up as fields, and the typical productive life of a well ranges from 15-30 years.

Hydraulic Fracturing or 'fraccing" is a process where water, chemicals and sand are injected into a coal bed to force the opening up of fissures to help release the gas from the coal bed. Not all CSG extraction requires the use of "fraccing".



Coal Seam Gas Extraction

The modern Australia CSG industry commenced in the later part of the last century with developments to meet domestic demand for gas in Queensland. Last year there were approximately 2800 production wells across the Surat Basin in Queensland, which produced as a by-product a total of about 8,000 megalitres of water.

In recent years there has been significant exploration and development in Queensland aimed at establishing a major export industry.

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It has been estimated that this may result in as many as 40,000 wells in the Surat Basin, plus significant development in the Queensland Bowen Basin, as well as major developments in North-West NSW.

While export production is yet to commence, exploration and planning activity is well underway.

Estimates of potential water production varies enormously with Australian Petroleum Production and Exploration Association (APPEA) estimating peak annual production at between 126 and 280Gl, with other organisations such as the National Water Commission (NWC) estimating production at 300-350Gl per year based on known projects.

When the Queensland domestic industry first started in the production phase early this century, the focus of the cotton industry was how it would be possible to use the water produced during CSG extraction for productive use.

As the scale of the CSG industry has increased the emphasis of the cotton industry has moved towards protecting the quantity and quality of water in the sub-artesian aquifers, protecting highly productive floodplain country from extraction activities and strengthening landholder rights.

For the cotton industry key regions that are either currently affected by CSG extraction or exploration, or are likely to be affected include Emerald, Chinchilla, Dalby, Cecil Plains, Goondiwindi, Moree, Bellata, Narrabri and Gunnedah.

The Risk to the Australian Cotton Industry from Coal Seam Gas Exploration and Extraction

The exploration for and extraction of Coal Seam Gas represents the following risks to the Australian Cotton industry and its growers:

- Damage to the long-tern sustainability of the sub-artesian production aquifers that provide irrigation water for the cotton industry. Damage could be in the form of loss of volume, loss of pressure or loss of quality.
- Short and long-term damage to the productive capacity of high value agricultural soils through contamination or compaction.
- Loss of access to land due to CSG infrastructure, including well pads, roads, pipelines, gathering lines etc.
- Loss of social amenity due to noise, infrastructure, increased traffic, employee movements etc.

The first two risks, represents risks to both the individual landholder and the wider Australian community.

It is well accepted that damage to aquifers in some cases can be irreparable, and in other cases may take decades or centuries to repair.

Likewise, Australia has a limited supply of high quality agricultural land, and any long-term damage to this limited supply greatly heightens Australia's long-term food security risk.

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The remaining risks are largely risks to individual landholders, or groups of landholders, who are either directly on indirectly impacted by exploration activities on theirs' or neighboring land.

It can be argued that these risks can be mitigated or compensated for by way of land access and compensation agreements.

Of these identified risks, the hardest risk to protect against, and to restore if necessary, is damage to the sustainability of sub-artesian production aquifers.

From Exploration Permit to Extraction – The Process

While specific laws vary from State to State, in general CSG activities can be divided into exploration activities and extraction activities.

Each stage involves government approvals, including conditions. While regulation of CSG extractions falls mainly within the responsibility of State Governments, Federal Government can have some input through Acts such as the Environmental Protection and Biodiversity Conservation Act, and possibly the Federal Water Act.

The Federal and State Governments have the capacity to put significant conditions on mining companies covering what they may do, how they may do it, and how they must measure, monitor and report their impacts.

Common to both States is that while land may be owned by individuals, the ownership of minerals within the land remains in the ownership of the State, and the State as the right to issue licences for exploration and extraction.

Further, while a landholder does have certain rights, he or she does not have the ultimate right to stop mining or exploration companies carrying out activities (in accordance with their licence) on that land.

In both Queensland and New South Wales there is a legislated process of communication between the mining company and the landholder that must be abided by, prior to a mining or exploration company entering private lands.

In Queensland the process can be summarized as follows:

Preliminary Activity (minor activity – includes walking, driving on existing roads, taking of soil or water samples, aerial, electrical or environmental survey)

- An entry notice must be given at least 10 business days before entry

Advanced Activities (any activities that are not minor activities)

- A conduct and compensation agreement must be entered into (or legally deferred) prior to an entry notice being given
- The mining company can give the landholder a negotiation notice

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- A negotiation notice gives both parties 20 days to negotiate a conduct and compensation agreement
- No activities can commence on the land during that 20 period, even if a conduct and compensation agreement is finalised prior to the end of the 20 day period
- If a conduct and compensation agreement is finalised the mining company can issue an entry notice 10 business days before entry. As part the conduct and compensation agreement the landholder may have waived the right to an entry notice or reduced the time required
- If during the 20 day period no agreement was finalised, either party, any time after the 20 day period has expired, can elect to refer the negotiations to an independent mediator
- The mediated process must be finalised within 20 days
- If there is still no agreement finalised, the party that initiated the mediated process can apply for a determination of compensation by the Land Court
- Once the referral to the Land Court has been made (even prior to its decision) the mining company can issue an entry notice with the 10 business day requirement
- The Land Court will then determine compensation

It should be noted that if the mining company does not attended the mediation process, it cannot make the referral to the Land Court.

In NSW South Wales the following procedure is in place

- The mining company must request that the landholder negotiates an access agreement
- Both parties have 28 d ays to reach an agreement
- If no agreement is reached, either party can request an arbiter
- If after a further 28 days no agreement on the arbiter has been reached, then either party can apply for the Director-General to appoint an arbiter
- The arbiter determines the access agreement, it is appealable to the arbiter and then to the Land and Environment Court.

In negotiating access agreements or conduct and compensation agreements landholders should consider all the likely impacts the mining company may have on your property, lifestyle and farming activities.

This could be a very extensive list, with one Queensland solicitor identifying in excess of 200 hundred issues that should be considered.

Landholders are strongly advised not to enter into any negotiations with mining or exploration companies prior to consulting a lawyer with expertise in this area.

Protecting the Water Resource

Queensland and New South Wales have taken different approaches to protecting the State's water resources from possible impacts caused by CSG extraction.

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Queensland has decided against requiring water extracted as part of the CSG process to be licenced, while NSW (under its draft Aquifer Interference Policy) will be seeking to licence any direct water use caused by mining.

Queensland is of the view that the water extracted as part of the CSG process is by-product water which that is not of usable quality, and has not been accounted for within their Water Resource Plans. As a State, it is prepared to 'mine" the CSG water.

Its management relies on the modeling of cumulative impacts and its "make good" provisions, which are designed to ensure that prior to any loss of water resource by an individual landholder due to CSG activities an agreement is in place between the mining company and the landholder to "make good" any water loss. "Make good" activities could include sinking new bores, deepening bores, lowering pumps, piping-in alternative supplies.

Further, Queensland seeks to have the water extracted either re-injected (where there are no likely negative impacts) or used for a variety of "beneficial uses". This currently covers a range of activities including aquaculture, dust suppression and irrigation. Water must be treated to a suitable standard for its intended use.

An independent study, engaged by the Central Darling Downs Irrigators Limited, suggests that the extraction of CSG and associated water from what is known as the Walloon Coal Measures will have an impact on the sub-artesian Alluvium of the Condamine River, an important water resource for the Queensland cotton industry.

In New South Wales the focus is on licencing all water use. For example a mining company would need to hold a licence for the water extracted from the GAB aquifer that contains the coal measures, but would also require a licence if the extraction process caused a decline in water levels in an overlaying sub-artesian aquifer. Further, if it could be shown that the activity was causing an impact on the flow available in a surface stream that would also have to be licenced.

While this puts the mining companies within the same framework as other water extractors, a potential downside is that the company could off-set its impact by simply purchasing entitlement of existing entitlement holders, reducing the amount of water available for productive use.

An option being actively considered in Queensland is the concept of "substitution". That is the holder of a licence for water out of a sub-artesian aquifer may agree to substitute treated CSG water for sub-artesian water, in turn mitigating any drawdown impact that the CSG activities may have had on the sub-artesian aquifer.

This approach could work either within a licencing framework (NSW) or outside (QLD).

Substitution and re-injection help maintain the current water balance, while new use – such as supporting additional irrigation development will lead to a loss of water outside the current balance.

While much of the focus has been on volume of water and the impact that may have on the resource, an equally important issue is the protection of water quality.

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This can probably be best achieved through strict rules on chemical usage, and monitoring of water quality to detect any change trends at the earliest possible time.

Proposed Policy

Protect the sustainability of sub-artesian aquifers that underpin irrigated cotton production

- Where there is any possible impact on a sub-artesian aquifer all possible steps are to be taken to maintain the "water balance".
    - The preferred method for maintaining the water balance is re-injection (where technically feasible).
    - Substitution should be used where re-injection is not technically feasible.
    - Water used for substitution must be treated to a level where it can have no negative impact on water or soil quality.

- Where there can be no likely impact on sub-artesian aquifers, "beneficial use" including new irrigation development should be encouraged.
- Evaporation or release to streams should not be considered as a disposal strategy, except under exceptional circumstances.
- All water use should be accounted for within the State's water licencing framework (This may not be appropriate for QLD).
- An independent and comprehensive quantity and water quality monitoring, evaluation and reporting network must be funded by the CSG companies, to identify any early impacts on either quantity or quality of the water resource contained within sub-artesian aquifers. This would include the requirement for a comprehensive baseline assessment.
- All construction, installation and operation of CSG infrastructure must be of the highest standard.
- Ban the use of "fraccing" in any area where is use poses a risk to sub-artesian aquifers.

Protecting the Land

NSW is in the process of developing its Strategic Regional Land Use (SRLU) policy. It purports to take a triple bottom line assessment to protect the regions.

QLD has its Strategic Cropping Land (SCL) policy which has been designed to protect the "best of the best cropping land" from activities that will cause permanent alienation of the land. Permanent is defined as fifty years or more.

It is expected that the SCL policy will provide complete protection for approximately 1% of QLD and partial protection (impacts can be mitigated against) for approximately a further 1%.

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However, it is considered that because CSG extraction is likely to be a relatively short-term activity on any piece of land (15-30yrs), and that full restoration of the land is considered possible, CSG activities will not be prevented by the SCL policy.

In NSW it remains unclear what protection to land the SRLU policy will provide. In a paper released prior to the NSW election the then opposition undertook (among other things) to "examine options to protect prime agricultural land so that natural gas development exists in a balanced manner so that the commercial activities of both industries are not compromised."

Proposed Policy

Protect high value agricultural land from CSG extraction activities

- That there should be a moratorium on CSG exploration and development on all country that would meet the soils criteria for SCL (QLD). The moratorium should remain in place until it can be definitively proven that CSG activities do not cause permanent alienation of the land.
- That in NSW CSG exploration and extraction should not be allowed on prime agricultural cropping land (the definition of prime agricultural cropping land to be determined by government after extensive public consultation).

Enhancement of Landholder Rights

As previously stated in both QLD and NSW the is a major imbalance between the rights of mining companies to access minerals found on private land, and the rights of landholders to manage access to that land.

The ultimate right would be the right of veto, however, this would require a major change in government policy, and impact directly on who owns the mineral, gas and petroleum rights (currently the Crown).

However, the current arrangements in both States leaves most (not all landholders) feeling dissatisfied and not fully compensated for the range of losses they have felt.

The ultimate test of the adequacy of an access and compensation agreement should be that the landholder should be able to drive around the property and see the CGS activities as an asset and not a liability.

Proposed Policy

Enhance land holder rights, to ensure access and compensation agreements are fair and equitable

- Strengthen land access and compensation arrangements in both States to ensure all real losses are compensated for.
- Allow compensation arrangements to include an element of "return" on the resource. That is a share of the production that is generated from an activity.

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