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General

The process of exploration for, and production of, Coal Seam Gas is of itself a negative to food security and water supplies just because of what it must do, and where it must and may do it, to conduct its authorised business.

Given such a level of negative, it must be being assumed there is and will be no unexpected additional issue, and no breaches of compliance, and no accidental mistakes. If any of these does occur the level of harm will be exponentially magnified.

Relying on a legal requirement to remediate (make-good) damage has two drawbacks, 1- it is retrospective and thus rarely can be fully successful, and 2- it relies on a wafer-thin government staff or the landholders themselves to monitor activities and make reports.

Likewise relying on each and every landholder to have adequate knowledge and skills and financial resources in dealing with giant corporations to protect their own rights and their communities' future is clearly flawed.

When this also threatens food security and precious and irreplaceable water supplies in the State which has the most variable climate in the world the entire process has to be perfect from the start and not tinkered with whenever a problem is discovered.

This document briefly examines the following-

Future food security
Livestock Production Assurance
Water
Make-good
Underground damage
"Plug and abandon" risks
Licensing of drillers
Contamination of land
Valuation

Future food security-

- Gas exploration is confined to productive areas of agricultural and pastoral operations, and is not occurring in Remnant Regional Ecosystems (although such operations are free to do so) thus compromising the State's most productive pastoral landscapes

- Loss of Coal Seam Water supplies will create a serious dilemma for landowners and the State when choosing whether to replace these with artesian supplies or cease agriculture on those holdings altogether

Livestock Production Assurance-

- Every cattle producer in Australia is required to abide by the Livestock Production Assurance scheme to be legally allowed to file a National Vendor Declaration with sale stock. The refusal of gas companies to specify what they will do and exactly how they will do it leaves every landholder in probable breach of this food safety program, and in an extreme situation could lead to a food safety issue

Water-

- Loss of resource-
    - Make-good can tap only artesian sources since they (arguably) are unaffected by CSG exploitation creating the dilemma for owner and State as outlined above **or**
    - Make good can be a financial settlement which will still leave that holding potentially waterless and out of production.
- Contamination of resource-
    - Loss of quality, which amounts to a loss of the resource, and raises the same dilemma as the above
    - The first sign that contamination is occurring is a sign that it is too late
    - With the added risk that artesian aquifers may indeed become, or already be, linked to water affected by the CSG industry, which may contaminate entire artesian sources, rendering the fall-back for the make-good provisions useless or unuseable
- Gas companies are not required to hold a licence to take water although their operations will produce and dispose of hundreds of times the quantities of water used for agriculture

Make-good

- For make-good provisions to deliver their purpose the State must **guarantee to honour** an agreement between a tenement holder and a landholder to make-good via an artesian replacement borehole by automatically issuing a water licence for the same purpose as for the damaged supply.

Underground damage (invisible)

- construction of holes is invisible and cannot be observed or discovered from above ground after the event, with no capacity to detect a problem except via water bore failure or contamination

- linking via poor construction or design will allow cross-contamination of clean water with dirty
- assuming adequate requirements, cowboy operators still exist and cannot be detected by an honour system
- self-audit of quality issues which are underground is an extraordinary way to manage inevitable accidental or careless construction failures

"Plug and abandon" risks

- With many thousands of holes to be drilled there will be at least hundreds which will be "plugged and abandoned" with no possibility of ever detecting a problem or faulty decommissioning until aquifer damage or contamination has been detected in stock water supplies

Licensing of drillers

- in Queensland the licensing of drillers for gas drilling is significantly different from that applying to multiple-aquifer water drilling and yet the importance to the water resource of skill, ability, experience and quality control in the gas operation is far more important because it's **purpose** is to tap into contaminants

Contamination of land-

- residues from drilling and associated activity escaping into surrounding environment
- residues from by-product water from production testing and production activity escaping from gathering facilities into surrounding environment
- residues from water treatment processes being adequately stored or dealt with to prevent escape to the environment
- bringing of non-indigenous material such as soil and gravel and plants for or during construction and operation
- erosion created or exacerbated by construction or use of access tracks and well- and camp-sites
- weed spread via machinery and vehicles used for gas operations

Valuation-

- Manifest inadequacy of conventional valuation procedures to assess the full range of impacts associated with exploration and production activities
    - Inability to sell cannot be factored into valuation to establish extent of compensable impact, only actual sales

    - Neither precedent nor expertise in the valuation profession exists in assessing costs and losses to day-to-day operations
    - Impossibility and unaffordability of every landholder commissioning a valuation for their holding
    - Impossibility of obtaining a valid valuation while gas companies cannot, or refuse to, provide a detailed plan of operations and plans until after a landholder has signed the agreement
    - Close ties between geo-thermal and mineral resource operators and most major valuation practitioners
- Risk of an enterprise with presently serviceable debt losing the capacity to service that debt (turnover/gross margin issue) even though a change in capital value cannot be demonstrated (since that can only be demonstrated by selling the enterprise)
- Risk of change in capital value rendering debt/equity ratios outside lenders margins leading to call-up of debt or increased risk margins being applied *even if the debt remains serviceable* (security value issue)