22 May 2017

Dear Sir/Madam,

Submission re Narrabri Gas Project

The above application should be rejected for the reasons outlined in this submission.

I. RISKS TO WATER

This project poses significant risks to water, as explained below. These risks must be considered in the context that **the wells Santos is proposing to drill would cover the Pilliga Forest – one of the few areas known to provide groundwater recharge to the Great Artesian Basin, Australia's largest and most important groundwater system**.

If groundwater is contaminated or pressure is lost in this area, this could have widespread effects on groundwater quality and quantity.

1. Risk of Groundwater Contamination

The project poses risk to groundwater contamination. Groundwater (and surface water) contamination can come from:

a) Produced water (naturally occurring underground water that's been unearthed, which can be toxic and radioactive)
b) Drilling fluid.

Improperly handled produced water and drilling fluids can contaminate surface water. **Even a small spill of the highly toxic mixture can have large impacts on the surrounding livestock and wildlife.** Spills of the drilling chemicals and wastes during transportation, drilling operations and waste disposal can also contaminate soil and surface waters.

a) Produced water

CSG produces massive amounts of contaminated wastewater pumped out of the coal seams, known as 'produced water'. **To give you an idea of the volume of produced water, in the Pilliga, approval was given for two storage ponds to hold brine and waste water with have a total capacity of 600 megalitres[i] (the equivalent to about 240 Olympic swimming pools[ii]).**

Produced water is high in salt and methane, and can contain naturally occurring toxic and radioactive compounds and heavy metals.

BTEX – which is renowned for being contaminants of air, soil and groundwater – are found **naturally** in the coal seam. They have a range of short terms and long term health effects – probably its most famous is benzene's link with leukemia. **In 2011 Arrow Energy admitted that 5 of its 14 monitoring holes at Dalby were contaminated with BTEX; with benzene detected 6-15 times the Drinking Water Standard.**[iii]

b) Drilling fluid

These material data safety sheets can give you an idea of the types of chemicals used in extraction - https://www.aplng.com.au/about-us/compliance/material-safety-data-sheets.html

Very large quantities of chemical are used per well, increasing the impact of contamination when things go wrong.

2. Risk of contamination when drilling through aquifers

Aquifers can be contaminated by water and chemicals when a hole is drilled through them (for example, when trying to reach a coal seam). The toxic materials contained in the coal seam can leak out when it's cracked.[iv]

Coal seam gas mining has the potential to create connection and cross-contamination between aquifers, with impacts on groundwater quality. While oil and gas companies have data concerning the geology, **they cannot identify every natural fault, fissure or other irregularity within hundreds of feet of the wellbore**.

Coal Seam Gas mining may create new fractures that intersect natural geologic vertical faults that communicate with the surface or with upper zones. In such a scenario, the formation pressure would force the newly liberated gas, as well as the residual toxic drilling fluids, through these new fractures and into the natural fault. **These fluids could then travel upwards along that fault past the reservoir cap and into a freshwater aquifer or to the surface at distances over 1.5kms from the well**.

According to a 2011 report by Shenhua Watermark Coal: "Drill holes or fractures may intersect with one or multiple aquifers potentially mixing groundwater from different strata or altering the groundwater chemistry through exposure to the air, gas, fracking chemicals and drilling fluids or the release of natural compounds like BTEX".[v]

As the fluids migrate upwards through the rock formations, they often become highly salinated and can be contaminated with naturally occurring carcinogens such as arsenic, hexavalent chromium and radium, along with other dangerous heavy metals, such as lead, selenium, mercury and antimony. Small amounts of these wastes can contaminate an entire aquifer.

3. Risk of contamination through a range of accidents

Contamination can also be caused by a range of accidents, such as:

- On-site spills and/or leaks (e.g. during the injection of the drilling fluids[vi]; surface spills from storage facilities[vii])
- Leaks from holding ponds and pipelines
- Spills of fracturing chemicals and wastes during transportation
- Accidental release of chemicals into groundwater (e.g. well malfunction)
- Leakage from on-site storage into drinking water sources
- Improper pit construction, maintenance and/or closure
- Accidents during the capture, transportation and disposal of the 'produced water'
- Faulty gas well casings
- Mechanical vibrations from natural gas drilling activity disturbing particles in neglected water well equipment[viii].

4. Lowering of aquifers

According to Santos in 2009, "Drawdown of groundwater heads within coal seam gas aquifers is an unavoidable impact".[ix] In other words, extraction of groundwater from coal seams will inevitably result in the drawdown (e.g. change in groundwater level) of freshwater aquifers in the same vicinity.

In their Environmental Impact Assessment, Santos talked about **7-25 metre drawdown** in bores near their gasfields in the Fairview and Arcadia (Bowen Basin) by 2028.[x]

Extracting large volumes of low-quality water **impacts on connected surface and groundwater systems, some of which may already be fully or overallocated**, including the Great Artesian Basin[xi]

Lowering the water table in aquifers can also degrade water quality by allowing more particles to concentrate in what is left in the aquifer.

There are some requirements that if CSG mining causes groundwater levels to drop below specified 'trigger' points then companies must 'make good' to affected water users. There is however concern over how these will actually work in practice.[xii]

II. THE RADIATION PROBLEM

Waste from CSG extraction can be radioactive – and in some cases, highly radioactive. This is because **CSG extraction brings naturally occurring radioactive materials to the surface**.

When produced water is released into our streams and rivers without adequate radiation treatment, highly radioactive elements like uranium and

radium, which had previously been safely trapped thousands of metres below the surface, can then enter the food chain and bioaccumulate in humans, plants, and animals just as heavy metals do.

Radioactive waste creates the risk of potential contamination of water supplies. Radioactive waste also creates issues surrounding transportation, treatment and disposal of the waste.

III. PROBLEMS CAUSED BY THE WATER TREAMENT

CSG produces massive amounts of contaminated wastewater pumped out of the coal seams. This produced water is usually high in salt, as well as full of heavy metals and can contain radioactive substances.

If it is released, it has the potential to alter the temperature, acidity and chemistry of local streams and lakes, wiping out plants and animals.
No two wells or coal seams behave identically and the amount of water produced can vary from a few thousand to hundreds of thousands of litres a day, depending on the underground water pressures and geology. In Queensland, the average well has produced around 20,000 litres of water each day, and tens of millions of litres of water each year.

Given the toxic and sometimes radioactive nature of the wastewater there is currently no satisfactory solution with how to deal with the problem of the massive quantities of wastewater.

Impacts on water quality, and river and wetland health from water treatment
The Narrabri Gas Project would involve a water management facility for the storage and treatment of produced water. However, with respect to any proposal to treat the water, it should be noted that the National Water Commission has raised the concern that the **"production of large volumes of treated waste water, if released to surface water systems, could alter natural flow patterns and have significant impacts on water quality, and river and wetland health".**

What will happen to the residuals from water treatment?
If the water is treated, the question must also be asked, what happens to the residuals—the concentrated brines and solids containing the chemicals removed from the produced water—that will be created as a by-product of the water treatment? **Chemicals in these residual wastes are present at higher concentrations than in the original produced waters.**

Some dangerous chemicals can't be detected
The question must also be asked whether the water would be tested, and if so by whom, and whether all the dangerous chemicals in the toxic wastewater can even be detected.

Some chemicals are dangerous at concentrations near or below chemical detection limits.[xiii] What this means is that the chemicals can do damage and we can't even test for them. **Just because something may be a low level does not mean it is safe.**[xiv]

Treatment of irradiated produced water

The treatment of irradiated produced water is also a problem. In Pennsylvania millions of litres of radioactive produced water — sometimes with radium levels 3,000 times the safe level —have been sent through sewage treatment plants incapable of correcting radioactivity and then discharged into rivers.[xv]

IV. THE SALT PROBLEM

Massive amounts of salt are produced as a by-product of coal seam gas projects. Modelling suggests the CSG industry in Australia could produce 31 million tonnes of waste salt over the next 30 years. This amount of salt would fill the Melbourne Cricket Ground to the brim 15 times.

NSW's coal seam gas industry has a "complete lack of solutions" to deal with large quantities of salt, with one pilot project alone producing five tonnes of salt a day, a report commissioned by the state's Chief Scientist says.

To give you an idea of the salt problem created by the industry, please see the picture at the following link: http://www.smh.com.au/environment/coal-seam-gas-industry-faces-salt-overload-20131204-2yqx8.html

V. THE INDUSTRIAL FOOTPRINT

The Narrabri Gas Project involves the progressive development of a coal seam gas field comprising up to 850 gas wells on up to 425 well pads over 20 years, and the construction and operation of gas processing and water treatment facilities.

Contrary to industry advertising that depicts CSG wells as a minor feature on the landscape, CSG fields have a significant industrial footprint.

The CSG wells are connected to roads and pipelines, pumps, generators, compressors, ponds or tanks, storage facilities and water treatment facilities. The impact on landscape includes pipelines, generators, compressors, water treatment, water storage tanks, well heads, roads and trucks; and the landscape will become littered with gas flares (gas flare or flare stacks are used in gas wells to 'dispose' of waste gas).

If this project goes ahead, on the surface, 95,000 hectares of remote country, including farmland and forests, will be criss-crossed with access roads, well-heads and flowline infrastructure, allowing gas and saline water to flow to distribution and treatment plants. A new gas pipeline would also be built, connecting Narrabri to the east coast markets.

To see what a gasfield of just 73 wells looks like, visit:
https://www.youtube.com/watch?v=GfDBPnCgQpQ

VI. THE TOXIC AIR POLLUTION PROBLEM

Air pollution is another serious concern where CSG activity takes place. It has been found that exposure to contaminated air may contribute significantly to the health problems of both people and animals living near gas drilling operations.

Farm residents in Chinchilla QLD have reported noxious air emissions from a neighboring gas production, complaining of burning eyes and respiratory problems.

Air pollution can arise from various sources:

- Flaring – Little air monitoring is conducted in Australia yet over two hundred air pollutants can be released from gas flaring including carcinogens such as benzopyrene, arsenic and chromium.
- Venting from condensate tanks and when liquefying the gas.
- Leaking pipes and wells, and chemical spills.
- Methane contamination brought to the surface from local aquifers contributes to local air pollution.
- Exhaust from pumps and trucks.

VII. THE NOISE POLLUTION PROBLEM

Noise pollution is a major concern for families living near gas wells. Drilling can be a 24 hour-a-day operation, and many people have reported very high noise levels, even inside their homes. Compressor stations operate around the clock and can even be heard several kilometres away. In addition, the constant stream of trucks going into and out of the gas wells can create serious noise problems.

VIII. IMPACTS OF UNCONVENTIONAL GAS MINING ON FOOD SECURITY

Studies by Penn State and Cornell found that in Pennsylvania counties with at least 10,000 dairy cows, those that had at least 150 Marcellus Shale wells experienced a 16 percent average **decline in the number of dairy cows** between 2007 and 2010, compared with a 3 percent increase in counties without shale gas wells. **The counties with the wells saw an 18.5% decrease in milk production;** counties without wells experienced an *increase* in milk production.[xvi]

Soil acidity increases in the vicinity of oil and gas pipelines where flaring occurs, reducing the amount of usable essential nutrients in the soil such as

carbon, nitrogen, and phosphorus. Unconventional mining also releases toxic heavy metals like arsenic, barium, cadmium, chromium, lead, and mercury into soils.

The Narrabri Gas Project would take place near productive farmland, and questions need to be raised regarding the long-term safety for the agricultural industry in the area. Humans and animals that eat these plants are exposed to these heavy metals, which can accumulate in body tissues and cause serious damage. Produced water can also posing a threat to our food supply and security.

When meat and produce are grown in toxic conditions, the toxic contamination doesn't stop at the farm field. Contaminated fruits, vegetables, and meats can be shipped all over the country, potentially poisoning people hundreds or thousands of miles away from the CSG source. Unfortunately, most foods are not adequately inspected for chemical contamination and residue. Government regulatory organisations may not even know what to test for.

There is also the issue of the perception of food grown in areas where CSG mining is prevalent. Australia is therefore risking its position as a major food exporter, as well as risking the health of people who consume the food produced and water sourced from gaslands.

IX. CSG'S IMPACT ON PHYSICAL HEALTH

While there are significant gaps in studies on health consequences, there is a considerable amount of evidence which indicates likely impacts on human health from CSG projects.

In fact, health professionals and organisations around Australia are concerned about the potential health impacts of CSG mining. Serious concerns have been raised about the availability of data and support for health research in relation to coal and CSG: 'A lack of monitoring and inadequate investment in research means there is grossly insufficient data available in Australia on health impacts to inform policy decisions."

Similarly, in a joint statement, a coalition of Australian health organisations "noted that the risks to human health from energy and resources policy were not being well accounted for in current policy decisions... and called for a precautionary approach to policy, and for potential intergenerational consequences to be considered."

X. CSG'S IMPACT ON MENTAL HEALTH

The cumulative impacts of water and air pollution, degradation of land and loss of amenity and landscape, all have mental health consequences for communities living in a gas field.

A Hunter Valley psychiatrist has documented the mental health impacts of CSG extraction he has witnessed: “Exploration is when the psychological stresses are first noticed in the community.... uncertainty starts to generate community anxiety.... The community starts to divide between the few who see it as an opportunity for an additional income and the larger number who hear the risks and see little in the way of benefits. .... Seismic surveys come and go with some damage to paddocks, heavy vehicle traffic ruining country roads, and noise. Drilling occurs with the same complications. The town takes on a different look...Lifetime plans are put on hold or cancelled. Property development in the area declines as a result of the general uncertainty. Rental property is more expensive... The gas company employs very few locals. Exploration wells are fracked to optimize the flow and the wells are flared for months. There is no explanation of the risks and precautions taken in these… operations. There is no publicity given to any air or water testing. There have been at least two separate unpredicted explosions locally due to gas migration known to the community from just a dozen exploration wells...This results in understandable anxiety about safety risks. In Gloucester this first phase has taken 5 years so far and production has yet to commence.

“The people are having their rights, their homes, their business, their health, their security, water, land taken away from them and threatened. Country roads all of a sudden have thousands of vehicle movements a day for each well being drilled, not to mention the truck loads of water, chemicals, equipment… compressor stations, gas plants, power plants, reverse osmosis water plants. Basically turning once peaceful lovely to live in places into overnight industrialised mini cities which is not what people live in the country for.”

XI. OTHER RISKS AND PROBLEMS OF CSG

There are many other risks and problems created by CSG, some of which are briefly summarised below:

- Land subsidence over large areas, affecting surface water systems, ecosystems, irrigation and grazing lands.
- Caravan parks and motels full of workers that will leave when the construction is finished.
- Damage to tourism.
- Causing house sales to fall through.
- People unable to afford the rent.
- The potential to lower the value of nearby properties. In Tara, Queensland, many residents want to be relocated away from the

gasfields but QGC, the gas company operating there, has stated categorically there will be no buy-outs.

- Lifetime plans are put on hold or cancelled.

- Property development declines in the area as a result of general uncertainty.

- Rental property becomes more expensive.

- Safety and road repair issues from the transportation of so much water and waste.

- It can divide previously close-knit communities between those who see it as an opportunity for an additional income and those who hear the risks and see little in the way of benefits.

- Coal seam gas is a fire hazard. It mainly comprises methane which is highly flammable and can be easily ignited by sparks or an open flame. Methane leaks are common and gas can leak from many places over an entire gas field. Should it be commercially exploited, pressurised methane gas flowing through gas pipelines from the processing plants could explode and cause devastation in this high value conservation area. Such blazes can, of course, also endanger residents in neighbouring towns.

- Explosions and injuries at sites, which pose not just a danger to the miners but also to firefighters, paramedics and other medical staff.

XII. CSG AND CLIMATE CHANGE

The overwhelming majority of the world's scientists are now as certain that humans are causing climate change, as they are that smoking causes lung cancer. This was one of the key take-outs of the most comprehensive assessment of the science of climate change ever undertaken: the IPCC Fifth Assessment Report, which was published on 27 September 2013.

In addition, according to a recent draft United Nations report, another 15 years of failure to limit carbon emissions could make the problem virtually impossible to solve with current technologies.

The fact of the matter is that we are now working within a very limited timeframe for dealing with these issues. We must act very quickly.

CSG is often touted as Australia's answer to our local global emissions' targets. It has been described as a transitional fuel between gas and renewable energy. This is not however the case.

CSG amplifies the problem of climate change. Natural gas is mostly methane, a super-potent greenhouse gas, which traps 86 times as much heat as CO2 over a 20-year period. So even small leaks in the natural gas production and delivery system can have a large climate impact — enough to gut the entire benefit of switching from coal-fired power to gas.

The 20-year Global Warming Potential (GWP20) of methane is currently understood to be about 105 times that of CO2. The next 20 years – the next 10, even – are crucial if we are to avoid climate change, so there are very good reasons to consider GWP20 rather than the more common GWP100. And with GWP 20, it only takes about 2.6% leakage to effectively double the net climate effect of gas. That is, the 2.6% that would be leaking as methane would have the same warming effect as the other 97.4% being burned, over the next 20 years. This doubling of emissions already makes fossil gas roughly equal in impact to black coal.[xvii]

APPEA has consistently said coal seam gas is 70 per cent cleaner than coal. But in September 2012 the Government released a report which found that the absence of published information about fugitive emissions - greenhouse gases that leak into the atmosphere during the extraction process - was a matter of "public policy concern".[xviii]

Many studies have found that there are sizable leaks. A study from Stanford reported that “A review of more than 200 earlier studies confirms that U.S. emissions of methane are considerably higher than official estimates. Leaks from the nation’s natural gas system are an important part of the problem”.

That study of studies found a best estimate for life-cycle natural gas leakage of a whopping 5.4 percent (+/- 1.8 percent). And that means replacing coal plants with gas plants would be worse for the climate for more than 6 decades.

The situation is even worse with liquefied natural gas (LNG) because the LNG life-cycle shown above is itself so energy intensive, consuming a considerable amount of natural gas and transportation fuel. Cooling natural gas to about −162°C (−260°F) and shipping it overseas for use in distant countries is costly and energy-intensive. The process to bring the gas to such low temperatures requires highly capital intensive infrastructure. Liquefaction plants, specially designed ships fitted with cryogenic cooling tanks, regasification terminals and domestic transmission infrastructure all make LNG relatively expensive in construction and operational cost.

Longtime oil and gas engineer Anthony Ingraffea has said that because of leaks of methane, the main component of natural gas, the **gas is not a “bridge” to a renewable energy future — it’s a gangplank to more warming and away from clean energy investments**.[xix]

CSG extraction results in fugitive methane emissions from:

- Methane escaping through underground systems[xx]
- Leaking pipelines, well heads and processing plants[xxi]
- Entrained methane in produced water
- Flaring[xxii]
- Gas and oil wells that lose their structural integrity also leak methane and other contaminants outside their casings and into the atmosphere and water wells[xxiii].

Vast amounts of methane appear to be leaking undetected from Australia's biggest coal seam gas field, according to world-first research that undercuts claims by the gas industry. Testing inside the Tara gas field, near Condamine on Queensland's Western Downs, found some greenhouse gas levels over three times higher than nearby districts, according to the study by researchers at Southern Cross University.[xxiv] **According to the Queensland Government, in the Tara gas field over 44 per cent of wells are leaking**.[xxv]

Multiple industry studies show that about 5 percent of all oil and gas wells leak immediately because of integrity issues, with increasing rates of leakage over time. With hundreds of thousands of new wells expected, this problem is neither negligible nor preventable with current technology.[xxvi]

In addition, there are the other emissions including carbon emissions during the full life cycle of CSG including production, pipeline transport, liquefaction, shipping, regasification, transportation and generation.[xxvii] In fact, a report showed that **flaring from unconventional gas in North Dakota alone is the equivalent to one million cars per year**.[xxviii]

BANS AND CONCERNS

A United Nations report has raised deep concerns about unconventional gas sources including CSG, claiming it presents considerable environmental risks. The report from the United Nations Environmental Program, said the risks ranged from potential water and soil contamination and surface leaks of gas to increased competition for water and implications for climate change.

Some countries, including France and Bulgaria, have banned fracking, while other E.U. nations have raised environmental bars high enough to discourage the practice.[xxix]

LEGISLATION AND REGULATION CANNOT EVER BE 100% EFFECTIVE

Neither CSG companies nor scientists understand the exact nature of the underground geology, aquifers or underground water pressures where they are drilling.

There are so many elements involved in the CSG mining process process that there is a lot of scope for accidents to happen and mistakes to be made.

Therefore, no matter what legislation and regulations you have in place, CSG will still create enormous problems and risks.

The Australian Petroleum Production and Exploration Association told a public meeting in Sydney in 2011 that: **"Drilling will, to varying degrees, impact on adjoining aquifers," and that good management could minimise the risks of water contamination, but never eliminate them**.'[xxx]

Moreover, on ABC's 'Inside Business of 4 April 2013', **investors admitted they were becoming "unnerved by it" and that it was "potentially quite tricky, dangerous stuff"**. To view, click here: http://www.abc.net.au/insidebusiness/content/2011/s3731460.htm

The reality is that no matter how well legislated and regulated the CSG industry is, things will go wrong.

In 2015 the NSW Chief Scientist issued a report on best practice in relation to CSG. If you do happen to consider her report for the purposes of your inquiry, I respectfully request that you taken into account her Terms of Reference – which was restricted to "Best practice". In other words, she was asked to advise on "how it could be done", not "if it should be done in the first place".

NEED TO EXERCISE THE PRECAUTIONARY PRINCIPLE

With so much uncertainty surrounding CSG and so many ways in which things could go wrong with the Narrabri Gas Project, the **well-established precautionary principle should be followed. The precautionary principle establishes that,** where the health of humans and the environment are at stake, the burden of proof that it is not harmful falls on those carrying out an action).

THE GAS SHORTAGE ARGUMENT

The standard argument from gas companies is that there is a supply issue and therefore more gas is needed.

Yet **the reason for the gas shortage is the gas export commitments made by the companies themselves**.[xxxi]

In other words, **gas companies are creating a shortage by committing to export the gas overseas, and then using the pending gas shortage as the reason to extract more gas.**

Australia is one of the only developed countries to permit unrestricted exporting of LNG. A proportion of Australian gas supplies should be set aside for domestic use, as occurs in the United States.

The Australian Government must not let the 'supply' issue be the determinant of the decision for the Narrabri Gas Project. We cannot let a problem that gas companies have created themselves to be the reason for Australia to take such big risks, including with the Great Artisian Basin.

Supply for Australians and Australian manufacturing companies needs to be secured through a gas reservation policy or by ensuring access to conventional gas from other parts of Australia. Coal Seam Gas mined from the Pilliga is not the answer.

THE COST OF GAS WILL NOT GO DOWN

Australia will soon become the world's biggest exporter of gas while households and businesses in the eastern states struggle with supply shortages and crippling prices.[xxxii]

The CSG industry argues that producing more CSG will decrease gas prices. However, according to a study by The Australian Institute, the linking with the world price means that **if Australia develops lots of new CSG gas fields, we will still pay the world price. If we don't develop new CSG gas fields, we will still pay the world price. Put simply, it is predicted that more gas development is not going to have any real influence on the gas price we're going to pay.**[xxxiii]

"This report suggests that even if the whole state of NSW were covered in gas wells it would have little impact on gas prices as it would just lead to more gas being exported.[xxxiv]

The Australia Institute shows that the greatest threat to gas prices on the eastern seaboard is the CSG export industry itself.[xxxv] The CSG industry is directly responsible for gas increases to Australians in recent years by virtue of exporting the gas overseas.[xxxvi]

THE BENEFITS ARE OVERSTATED

By 2021 Australia will eclipse the Persian Gulf state of Qatar to become the world's biggest exporter of liquefied natural gas. In that year, when both countries are forecast to pump and ship roughly 100 billion cubic metres of LNG each, **Qatar's government will receive $26.6 billion in royalties** from the multinational companies exploiting its offshore gasfields. According to Treasury estimates, **Australia will receive just $800 million for the same volume of gas leaving its shores**.[xxxvii]

In addition, although the mining and unconventional gas industries claim the resources boom brings jobs, taxes and increased exports, **this growth comes at the direct expense of other industries such as agriculture, manufacturing, education and tourism**.[xxxviii]

The projected economic gains from CSG development have been widely claimed by industry, but **a full cost-benefit analysis of the impacts on the wider economy of a massively expanded CSG production has not been done**. Financial benefits from employment, mining royalties and the export of coal seam gas must be offset against damage to agriculture, food exports, tourism, soil, water and air quality, as well as human health and well-being.[xxxix]

Regular reports show that **Australians overestimate the extent to which the mining industry contributes to the workforce and the economy**.

We also need to take into account the subsidies we pay energy companies, the fact that a large number of mining companies are foreign-owned, that it is the resources of the Australian people they are taking, and that they are putting our precious water and prime agricultural land at risk.

PRIVATISATION OF PROFITS, SOCIALISATION OF COSTS

In Virginia in 2014, 300,000 had their water contaminated after a chemical spill by a company cleaning coal. They couldn't drink it. They couldn't even shower in it. Two months on, some people were still unable to drink their water.

A week after the spill, Freedom Industries, the company responsible for the widespread contaminated of West Virginia's water supplies, **filed for bankruptcy**.

The point is, while the profits from these companies mainly go to private individuals, if anything goes wrong the rest of us have to wear the burden.

Companies can file for bankruptcy; directors can flee overseas. But those people directly affected don't have that option. And the rest of us wear the costs through our taxes or by providing other forms of aid. No matter how much compensation a company will be required to pay, and may pay, we will all also have to pay in one way or another.

SEVERE PRESSURE ON FRESH WATER IN THE FUTURE

In 2013, 500 scientists from around the world warned that **the majority of the 9 billion people on Earth will live with severe pressure on fresh water within the space of two generations** as climate change, pollution and over-use of resources take their toll. "There is no citizen of the world who can be complacent about this," said Janos Bogardi, former director of the UN University's Institute for Environment and Human Security.[xl]

Moreover, recently the national science agency CSIRO and the Bureau of Meteorology released a report which predicts that, if we maintain the status quo, temperature rises of up to 5.1C in Australia by 2090 - and that these will create **water resource challenges**.[xli]

In fact, there is an **overwhelming body of evidence, which shows that water scarcity will become a major issue in the future**.

If the Narrabri Gas Project goes ahead it will draw massive amounts of produced water from the ground, lower aquifers and risk contamination of the Great Artisian Basin.

WE SHOULD BE PRESERVING OUR FORESTS

The Narrabri Gas Project would take place in and around the Pilliga state forest near Narrabri.

According to the UN Environment Programme in August 2013, the Earth is in the midst of a mass extinction of life. Scientists estimate that 150-200 species of plant, insect, bird and mammal become extinct every 24 hours. This is nearly 1,000 times the 'natural' or 'background' rate and, say many biologists, is greater than anything the world has experienced since the vanishing of the dinosaurs nearly 65 million years ago.

We should be preserving our forests, not destroying them.

CONCLUSION

The decision about whether the Narrabri Gas Project should go ahead is a balance of the **interests of a gas company that has helped create a supply and cost problem for the Australian manufacturing sector and for the people of Australian** – versus the interests of the rest of Australia.

The impacts and risks of CSG mining in the Narrabri area are huge. **If anything goes wrong the implications could be catastrophic, including for the Great Artisian Basin – Australia's largest and most important groundwater system**. If something goes really wrong, Santos can file for bankruptcy and its directors can flee overseas. But Narrabri locals, and in fact all Australians, could directly or indirectly be paying for generations to come.

Coal Seam Gas mined from the Pilliga is not the answer. There are other solutions, including setting aside a proportion of Australian gas supplies, as occurs in the United States.

Allowing the Narrabri Gas Project to go ahead would create new problems and risks for Australia. It would not fix the underlying cause, which is that gas companies have overcommitted Australian gas for export. Their overcommitments should not drive Australian policy and decision-making.

The impacts and risks of the Narrabri Gas Project are too great – and no amount of regulation can ever be 100% effective. The application therefore needs be rejected.

Yours sincerely,

[Name Withheld]

---

[i] http://www.abc.net.au/news/2013-04-02/santos-given-approval-for-holding-ponds/4604944

[ii] An Olympic swimming pool contains about 2.5 ML of water, according to the Department of Primary Industries Office of Water 'Managing coal seam gas produced water' document, April 2013.

[iii] http://www.youtube.com/watch?v=gz2mq5GYnR0

[iv] http://www.sbs.com.au/news/article/1626037/Factbox-CSG-in-Australia

[v] Shenhua Watermark Coal Pty Ltd, Review of Environmental Factors Exploration Drilling and Associated Activities -EL 7223 February 2011 GHD-RPT-EXP-DRL-007 [1] Revision 1

[vi] http://frackingofamerica.com/

[vii] http://cce.cornell.edu/EnergyClimateChange/NaturalGasDev/Documents/PDFs/Howarth%20Nature.pdf

[viii] http://www.sciencedaily.com/releases/2013/07/130726121612.htm

[ix] http://www.youtube.com/watch?v=gz2mq5GYnR0

[x] http://www.youtube.com/watch?v=gz2mq5GYnR0

[xi] http://nwc.gov.au/nwi/position-statements/coal-seam-gas

[xii] http://www.abc.net.au/news/specials/coal-seam-gas-by-the-numbers/

[xiii] State University of New York, Chemicals and Biological Risk Assessment for Natural Gas Extraction, March 2011

[xiv] http://www.youtube.com/watch?v=gz2mq5GYnR0

[xv] http://ecowatch.com/2013/concerns-over-radioactive-fracking-waste-mount/

[xvi] http://www.huffingtonpost.com/maria-rodale/how-fracking-affects-your_b_3613373.html

[xvii] http://reneweconomy.com.au/2013/gas-is-it-a-natural-fit-for-buildings-57762

[xviii] http://www.abc.net.au/news/2012-12-09/background-briefing-coal-seam-gas/4416808

[xix] http://www.nytimes.com/2013/07/29/opinion/gangplank-to-a-warm-future.html?_r=0

[xx] http://stop-csg-illawarra.org/csg-risks/leaking-methane/

[xxi] http://stop-csg-illawarra.org/csg-risks/leaking-methane/

[xxii] http://stop-csg-illawarra.org/csg-risks/leaking-methane/

[xxiii] http://www.nytimes.com/2013/07/29/opinion/gangplank-to-a-warm-future.html

[xxiv] http://www.smh.com.au/environment/climate-change/methane-leaking-from-coal-seam-gas-field-testing-shows-20121114-29c9m.html#ixzz2acWToBF4

[xxv] (see page 4 of following pdf: http://mines.industry.qld.gov.au/assets/petroleum-pdf/tara_leaking_well_investigation_report.pdf).

[xxvi] http://www.nytimes.com/2013/07/29/opinion/gangplank-to-a-warm-future.html

[xxvii] http://www.brisbanetimes.com.au/environment/cloud-over-csg-emissions-20110818-1izx1.html

[xxviii] http://thinkprogress.org/climate/2013/07/29/2373991/report-emissions-from-natural-gas-flaring-equivalent-to-one-million-cars-per-year/

[xxix] http://keeptapwatersafe.org/global-bans-on-fracking/

[xxx] http://www.smh.com.au/environment/water-issues/coal-seam-damage-to-water-inevitable-20110802-1ia00.html#ixzz2Y4Kp0aEn
[xxxi] http://www.abc.net.au/unleashed/4648696.html; http://www.theaustralian.com.au/business/opinion/focus-on-export-lng-is-causing-domestic-shortage/story-e6frg9if-1226663465479
[xxxii] http://www.smh.com.au/federal-politics/political-news/malcolm-turnbull-talks-tough-on-gas-supply-before-showdown-with-industry-20170418-gvn6bf.html
[xxxiii] http://www.abc.net.au/unleashed/4648696.html
[xxxiv] http://www.weeklytimesnow.com.au/article/2013/07/05/575785_national-news.html
[xxxv] http://www.weeklytimesnow.com.au/article/2013/07/05/575785_print_friendly_article.html
[xxxvi] http://www.abc.net.au/unleashed/4805342.html
[xxxvii] http://www.smh.com.au/federal-politics/political-news/turnbull-government-called-on-to-explain-where-australias-offshore-gas-wealth-is-going-20161009-gryaoi.html
[xxxviii] http://www.lockthegate.org.au/csg_myth_busting
[xxxix] http://www.lockthecampus.org/whats-wrong-with-gas/
[xl] http://www.guardian.co.uk/environment/2013/may/24/global-majority-water-shortages-two-generations
[xli] http://www.theguardian.com/environment/2015/jan/26/climate-change-will-hit-australia-harder-than-rest-of-world-study-shows