

29 January 2019

Dear Sir/Madam,

### **Submission on review of the water trigger legislation**

It is my position that the water trigger is a crucial piece of legislation that fills gaps in State and Territory assessments and determination processes for coal mining and CSG.

Key improvements are however needed to make it more effective.

#### ***The importance of protecting our water***

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.<sup>i</sup>

Moreover, in 2015 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**.<sup>ii</sup>

According to the World Bank, currently 1.6 billion people live in countries and regions with absolute water scarcity and the number is expected to rise to 2.8 billion people by 2025.<sup>iii</sup>

In fact, there is an **overwhelming body of evidence, which shows that water scarcity will become a major issue in the future**. It is therefore critically important that we protect our water resources.

#### ***The importance of water security for our economy***

Aside from the fact that water is an essential component of everyday life, **there are strong economic reasons for protecting our water**.

Time and time again we see what happens when things go wrong with mining activities – the responsible company often goes into liquidation or might pay a nominal amount of compensation, with **the public purse footing the remainder of the bill**.

This is even more of a risk now with the decline in profits of coal and gas companies.

An emerging issue is global coal giants moving away from less-profitable mines, leaving the fate of expensive environmental rehabilitation in the hands of companies with far fewer resources.<sup>iv</sup> These latter companies would also be ill-equipped to pay the costs when things go wrong.

When things go wrong and the tax payer is left to foot the bill, the people of Australia end up the losers. Protecting our water is in the best interests of all Australians.

### ***Application of water trigger not resulting in adequate protection***

In spite of the importance of protecting Australia's water, the application of the water trigger has not resulted in adequate protection for water resources, and this is a key area for improvement.

One example of this is the Narrabri Gas Project in the Pilliga, which was assessed and approved under the water trigger.

Up to 850 Coal Seam Gas (CSG) wells are planned by Santos across the Pilliga.

The Pilliga is a vital recharge area for the Great Artesian Basin. The porous rock below the Pilliga soaks up the rain like a sponge and carries water to the west, deep into the Great Artesian Basin. As a recharge area for the Great Artesian Basin, the Pilliga is connected with groundwater systems across NSW and Queensland.

According to Santos, the CSG "is not taken from the Great Artesian Basin; but from coal seams that lie much deeper underground."

However, 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. A frack job, for example, may create new fractures that intersect natural geologic vertical faults that communicate with the surface or with upper zones.<sup>v</sup>

In addition, 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".<sup>vi</sup>

Santos' project in the Pilliga also includes drawing massive amounts of waste water from the coal seams. In fact, **approval has been given for two enormous storage ponds to hold brine and waste water, which will have a total capacity of 600 megalitres<sup>vii</sup> (the equivalent to about 240 Olympic swimming pools<sup>viii</sup>).**

The project will also result in the drawdown (e.g. change in groundwater level) of freshwater aquifers in the same vicinity. It has also been reported that

Santos said in 2009, “Drawdown of groundwater heads within coal seam gas aquifers is an unavoidable impact”.<sup>ix</sup>

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

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 and Murray-Darling Basin.<sup>xi</sup>

**Lowering the water table in aquifers can also degrade water quality by allowing more particles to concentrate in what is left in the aquifer.**<sup>xii</sup>

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.<sup>xiii</sup>

These are just some of the water issues and risks in relation to the Pilliga project. As mentioned, the area is a recharge basin for the Great Artesian Basin. There are also many farmers in the area who rely on the water, and Australians in turn rely on their produce.

The fact that the project was approved in spite of the water trigger shows the need for the legislation to be strengthened.

This includes clear boundaries and thresholds, such as exclusion zones for important water resources like the Great Artesian Basin and drinking water catchments, as well as mandatory standards for matters like set-backs, monitoring, water quality and access to cultural water.

### ***State Governments’ assessments, approval and monitoring regimes inadequate***

In spite of its need for improvement, the water trigger provides an extremely important check and balance as State Government’s assessments, approval and monitoring regimes are inadequate.

As a case on point, in May 2014, the NSW Chief Scientist issued a report measuring the cumulative impacts of activities that impact the ground and surface water in the Sydney Special Catchment areas.

**Alarmingly, her report made it clear that there is insufficient information regarding the extent of damage currently being done to the water catchments from mining activity.**

She gave a long list of things that need to be monitored.

However, the NSW Chief Scientist viewed insufficient evidence as a reason not to stop mining in the water catchment area. I respectfully argue that her

judgment is flawed.

The NSW Chief Scientist's rationale was that there's insufficient evidence to prove that the activity is unsafe. However, **she should have applied the well-established precautionary principle, which would have found that insufficient evidence should be used as a reason to stop the activity. (The precautionary principle is the rule 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).**

State Governments' assessment, approval and monitoring regimes are simply not fit for the purpose of assessing the risks and damage to water resources posed by coal and unconventional gas mining.

Moreover, the States cannot assess, prevent and mitigate impacts that occur outside their jurisdiction, nor are their assessment processes consistent and comprehensive when it comes to water, for example in dealing with the social, cultural and economic uses of water.

### **Advice by the IESC often ignored**

Advice by the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) is often ignored. It should be given more weight and the IESC should have power to create binding guidelines, and require standards – such as enforcing ANZECC water quality guidelines for creek discharges.

### ***Recommendations***

It is my position that the following recommendations be adopted:

- That all unconventional gas mining, shale and tight gas, as well as CSG, be covered by the water trigger, along with any other related fossil fuel developments, such as shale oil and underground coal gasification.
- That the water trigger be applied to related water developments for coal mining and unconventional gas not currently triggering the law. If a borefield, dam or water pipeline is proposed in order to feed a coal mine with water, or a water treatment facility proposed for a CSG operation, they are water resources impacts of those activities and it should be triggered.
- There should be clear boundaries and thresholds, such as exclusion zones for important water resources like the Great Artesian Basin and drinking water catchments, as well as mandatory standards for matters like set-backs, monitoring, water quality and access to cultural water.
- Water resources that are not of obvious continental scope should be included in the Federal water trigger oversight, because they support communities and industries of national importance, such as Sydney's

drinking water catchment, groundwater systems that support major food producing regions, or the Fitzroy River, which drains to the Great Barrier Reef.

- The Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) should be tasked with reviewing state and territory legislation and statutory arrangements for the management of water volumes and quality and assessment and prevention of mining impacts and whether those measures are fit for purpose.

The importance of water cannot be understated. Water is critically important not just as a means of survival and day to day living – but also for the wellbeing of the economy.

We need to have the water trigger as a check and balance to ensure that decisions made in respect of our water are sound and reasonable. But key improvements are needed to make the water trigger more effective.

Yours faithfully,

[Name withheld]

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<sup>i</sup> <http://www.guardian.co.uk/environment/2013/may/24/global-majority-water-shortages-two-generations>

<sup>ii</sup> <http://www.theguardian.com/environment/2015/jan/26/climate-change-will-hit-australia-harder-than-rest-of-world-study-shows>

<sup>iii</sup> <http://water.worldbank.org/topics/water-resources-management/water-and-climate-change>

<sup>iv</sup> <http://www.theguardian.com/environment/2016/jan/29/coal-giants-abandon-unprofitable-mines-leaving-rehabilitation-under-threat>

<sup>v</sup> <http://frackingofamerica.com/>

<sup>vi</sup> 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

<sup>vii</sup> <http://www.abc.net.au/news/2013-04-02/santos-given-approval-for-holding-ponds/4604944>

<sup>viii</sup> 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.

<sup>ix</sup> <http://www.youtube.com/watch?v=gz2mq5GYnR0>

<sup>x</sup> <http://www.youtube.com/watch?v=gz2mq5GYnR0>

<sup>xi</sup> <http://nwc.gov.au/nwi/position-statements/coal-seam-gas>

<sup>xii</sup> <http://frackingofamerica.com/>

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<sup>xiii</sup> <http://www.abc.net.au/news/specials/coal-seam-gas-by-the-numbers/>