

November 5, 2013

**Submission to the
State Environmental Planning Policy
(Mining, Petroleum Production and Extractive Industries)
Amendment (Coal Seam Gas) 2013**

The Public Health Association of Australia (PHAA) is a national peak body for public health professionals, researchers and educators across Australia.

Public health functions to 'promote the conditions in which people can be healthy'. Research has shown time and time again that protection of basic health needs and prevention of unhealthy conditions are much more effective and far less costly in securing health than trying to fix far-reaching problems once they have occurred.

The Association is pleased to see a policy amendment that seeks to provide some protection to some locations through the identification of some exclusion zones where drilling for coal seam gas would not be permitted. Most notably this includes locations within 2 kms of residential and 'village' areas, which is preferred over no regulation protecting the immediate locations where people live and children play. The consequences of having CSG wells in immediate proximity to homes can be witnessed in the Tara Estate in Queensland and in the United States – it is a spectre that we hope never to see increase.

However, there are many serious limitations in this legislation that would fail to provide adequate protection of essential health-providing services to the people of NSW. The PHAA urges the government to make additional exclusions to prohibit CSG exploration and extraction in order to help ensure that there is no compromising of human health now or in the future from this industry.

In this submission we express grave concerns regarding the significant health risks associated with CSG production and extraction, and urge the NSW Government to expand the proposed exclusion zones where these activities cannot occur in the interest of public health and safety now and in future. We make two arguments – one being that the proposed 2km exclusion is insufficient to protect residential and village areas and the second being the absolute imperative of excluding CSG activities in areas that provide and protect NSW's water resources.

1. We recommend that the exclusion zone around residential areas and villages be expanded to the point where it truly protects people's health and wellbeing.

- **There is agreement among medical and health organisations that the risks and concerns posed by CSG activities are real and significant.**
- **Legislation regarding the exclusion of places where people live from coal seam gas activities should be based on what is required to protect them from the many significant risks to human health and wellbeing, rather than an arbitrary 2km rule.**

We urge the NSW government to take all, not just some, risks to human health and wellbeing seriously. Protecting residential and village areas is essential, but there is no scientific evidence that indicates or suggests that a 2km zone will protect families and communities from the many significant concerns the industry poses.

The Public Health Association of Australia has provided substantial documentation regarding our concerns about the risks promoted by coal seam gas and other unconventional gas mining to the health and wellbeing of Australians. We are joined in our assessment by a number of other professional and academic public health and medicine groups, such as the Australian Medical Association, the Doctors for the Environment Australia and the Climate and Health Alliance, in recognising serious issues involved in unconventional gas production processes that create risks or have not been proven safe for community and population health.

Appendix 1 provides a brief summary of the publicly available views and conclusions of these organisations regarding the risks to health from coal seam gas mining. Most extracted from submissions to the review by the NSW Chief Scientist and Engineer. Links to detailed documents providing the evidence from the peer reviewed literature and high quality reports justifying these conclusion are also provided in the Appendix.

A commissioned review has been provided by the University of Western Sydney for the NSW Chief Scientist and Engineer, entitled ***Background paper on community concerns in relation to coal seam gas***. This report is available at:

http://www.chiefscientist.nsw.gov.au/_data/assets/pdf_file/0010/31789/Community-Concerns-in-relation-to-Coal-Seam-Gas_Taylor,-Sandy-and-Raphael_UWS.pdf

It provides a systematic examination of the vast range of concerns expressed through the peer-reviewed literature, reports, and the formal and social media. This adds to, and reinforces, the evidence of health and wellbeing risks presented by the health organisations and detailed in the links in Appendix 1.

Appendix 2 presents an image that captures many of the issues raised by health and medical experts and community members and further captured by University of Western Sydney's

commissioned report. It shows how widespread, multiple and inter-connected the community concerns associated with CSG activities are. Many of these will directly and/or indirectly impact on their health and wellbeing. It is also clear that only some of these concerns would be avoided or alleviated by a 2km exclusion zone.

We therefore urge the government to base their legislation on the true protection of health and wellbeing, recognising the 2kms is simply insufficient.

2. We urgently call for the addition of water catchment areas and other important vital water resources to be added to the exclusion areas that will not be available for coal seam gas activities in NSW.

The PHAA is greatly concerned that the SEPP amendment does not provide protection of the lands that produce and harbour the most essential requirements of health – that is, water – from an industry that poses unacceptable risks to water supplies.

The short, and particularly, the long term health benefits of permanently protecting our water resources are inarguable.

Prime among vital areas that need absolute protection is Sydney's water catchment. It is the source of the majority of clean and usable water and inarguably the city's and region's most important foundation for good health. Permanent and absolute protection of the water supply is an essential public health priority.

The importance and challenges of securing environmental conditions for the protection of our crucial water supply necessary for public health have never been greater.

Three intersecting pressures threaten the provision of sufficient quantities of clean water. Firstly Sydney's population is projected to rise from 4.5 million today to 6.5 million in 2056, and all of these people will require water for their health and wellbeing.

Secondly, our climate is changing and rainfall patterns in south eastern Australia are likely to become less predictable and with more extreme events in future. This translates to more extreme downpours and floods in some years, followed by more severe and longer droughts in others.

Massive bushfires across NSW remind us that our state is extremely vulnerable to heat and its devastating consequences. The increase in temperature will promote evaporation from our dams and reduce the resilience of ecosystems that protect the quality of our water as it flows into the catchment.

In October, as we witnessed some of the worst fire conditions, we also became acutely reminded of the value of water as our primary protectant in controlling fires. Thus as models predict both longer and more severe droughts, triggering larger and more severe

bushfires, we call for additional protection of our water resources to be able to provide the greater quantities of water required to protect homes and properties into the future.

These changes will happen whether we like it or not – NSW's contribution to the severity of climate change and the degree to which our population will be able to adapt depends on the wisdom of our governments who have the power to make decisions that protect – or continue to compromise - our most precious health resources.

The third pressure, which is the only one of the three that we have a significant and direct choice on is the decision of whether to allow or prohibit coal and coal seam gas mining in the catchment.

Coal seam gas extraction, should it be allowed to progress in our Catchment, brings a vast array of health and social concerns due to the complete reliance we have on our water supply. Any compromise on quantity or quality of water would lead to a grave situation for Sydney.

The diagram below shows clearly the multiple avenues through which CSG activities threaten our water supplies. These multiple risks occur throughout the whole process, from preparation, drilling, dewatering, fracking, production, storage and local and/or pipeline transport. The subsequent liquification and shipping (if for export) and ultimate combustion for usage adds further to the greenhouse gas emissions that will continue to accelerate climate change which, if left unchecked, will threaten survival itself, impacting in an unprecedented manner to our capacity to maintain safe drinking water, especially in a dry continent such as Australia.

Among the local risks to our water catchments and underground water resources are surface and underground contamination from spills, unresolved worries about what to do with the huge quantities of toxic waste water and salt produced, structural damage to aquifers already impacted by longwall mining, disruption of ecological integrity and potential of fire exacerbation through methane leakage that could degrade the vegetation that protects water quality and reduces evaporative losses.

Putting all of these issues into one picture, the diagram in Appendix 3 highlights the unacceptable risks that CSG in Sydney's catchment, superimposed on the legacy and continuing impact from underground coal mining which has been and is likely to continue in the water catchment.

Whilst we have focused here on Sydney's water catchment, it is likely that each of the areas in NSW that harbour important water catchments, aquifers and additional water resources for drinking, food production and other industry uses also face numerous multiple challenges in the future as a result of population growth and climate change.

Communities across NSW are acutely aware of the risks associated with these activities, especially in our water catchments. A ban on CSG exploration and extraction in Sydney's Water Catchment Area was recently debated in the NSW Parliament in response to a petition supported by over 13,000 signatures.

Thus the conservation of our catchments, in order to guarantee sufficient clean water for 6.5 million people struggling with an increasingly severe climate, has to be undertaken now. If the catchment is substantially damaged, providing water such as by recycled water and desalination, while necessary, will be both more costly, require more energy and raises questions of vulnerability to severe water crises.

We urge the NSW government to provide, once and for all, full and complete protection to all areas that provide water to our population. This cannot be achieved through regulation as many of these risks, especially those associated with water quantity, are currently unavoidable. Adequate protection can only be achieved by **exclusion**. To leave open the possibility for yet another risky and enormous water-consuming industry in areas currently providing our vital water supplies – at a time of population increase and an increasingly harsher, drier and unpredictable climate - leaves the health and wellbeing of millions of current and future NSW residents insecure.

While there are many options for supplying energy to our households and industries, there is no substitute for water. We simply must not put our state's supply of this precious resource at risk and urge the NSW government to add these areas to the exclusion zones.

In conclusion, the PHAA recommends that, rather than an arbitrary 2 km zone and protection of two particular industry clusters, the exclusion of coal seam gas activities in NSW needs to be sufficient to adequately protect residential and village areas as well as the whole water catchment for Sydney AND any other region, town or place where protection of basic health resources such as water, agricultural land, recreational areas, amenities etc., is necessary for long term health and well being.



Appendix 1.

Warnings from Australian health organisations regarding the health and safety risks of Unconventional Gas exploration production and use

Early in 2013, the New South Wales Chief Scientist and Engineer began a detailed review of the evidence of the risks to public health and safety posed by coal seam gas (CSG) mining. Over 220 public submissions were received to assist this review. The initial report, a series of commissioned background papers and the public submissions are available at http://www.chief_scientist.nsw.gov.au/coal-seam-gas-review. Several health organisations provided submissions reviewing the recent health research and peer reviewed publications relevant to CSG. The full review will continue for many months.

This information sheet provides a guide to the emerging consensus regarding the evidence of health risks of CSG among a number of Australian health organisations.

The **Doctors for the Environment Australia** (http://dea.org.au/images/uploads/submissions/Review_of_CSG_in_NSW-Chief_Scientist_Submission_05-13.pdf) reviewed the literature on four groups of health threats raised by CSG mining:

1. Physical e.g. accidents, chemical exposures, worker health
2. Environmental impacts mediated through air, water, soil and food
3. Impacts on psycho-social wellbeing and mental health
4. Cumulative risks from CSG in a climate-changing world.

Based on this review, the DEA concluded:

- the development of unconventional gas (UCG) mining in NSW and Australia presents significant threats to public health.

- The current level of assessment, monitoring and regulation of UCG exploration and mining activities in Australia is inadequate to protect the health of current and future generations of Australians.
- There is the potential for public health to be affected by UCG operations directly, and indirectly via contamination of water, air, soil and food and from mental health impacts on communities who have had environmental changes imposed upon them.
- Human health relies on having clean safe drinking water and unpolluted air. UCG operations should not be allowed to endanger these basic health needs of Australians. Any development of this industry requires adequate scientific studies and the application of precautionary principle.
- The long-term impacts of UCG mining risk significant damage to the ecological systems upon which human life depends.
- UCG, like all fossil fuels, contributes to greenhouse gas emissions and therefore climate change. As such it potentially contributes to the globally increasing burden of ill health due to climate change.

This submission joined many from the DEA communicating the health risks and concerns associated with CSG to the medical profession, the public and Australian governments. These included submissions into two parliamentary committees and to two coal seam gas proposals in Sydney's water catchment and residential areas of in Western Sydney (<http://dea.org.au/resources/submissions>).

The **Public Health Association of Australia**, which has also been actively advocating for precautions in relation to UCG, reported to the Chief Scientist (http://www.chief_scientist.nsw.gov.au/data/assets/pdf_file/0012/30027/CSG-Review-Submissions-0191.pdf):

"There are direct effects on the health of nearby residents as well as on the environment near CSG developments. There are secondary and flow on effects particularly on Australia's future capacity to provide drinking water and support agriculture/stock to grow food for ourselves and for export...In addition to any large scale effects, mental wellbeing, bush fire risks and future government liabilities are important extra issues that need to be included in accounting for effects of CSG and fossil fuel use".

In its submission to the Chief Scientist, the **National Toxics Network** described the many toxic chemicals potentially involved in the exploration and production of UCG (http://www.chiefscientist.nsw.gov.au/data/assets/pdf_file/0006/29877/CS_G_-_Review-Submissions-0039.pdf). It highlighted the lack of assessment of toxicity, persistence and environmental reactivity of chemicals introduced via hydraulic fracturing in Australia. It also identified the many known toxic contaminants within the vast volume of produced water containing fracking and drilling chemicals and naturally occurring carcinogens, heavy metals, radioactive materials and salt.

A submission to the Chief Scientist by the **Climate and Health Alliance** (http://www.chiefscientist.nsw.gov.au/data/assets/pdf_file/0004/29992/CSG-Review-Submissions-0157.pdf) concludes:

“Communities living and working in proximity to CSG drilling, processing and transportation are being exposed to toxic air, water, and soil pollution, ... Without comprehensive studies, given the many apparent adverse impacts on human and animal health, a ban on CSG gas drilling is essential for the protection of public health.”

In May 2013, the **Australian Medical Association** added their voice of concern with the AMA President publishing the following statement (<https://ama.com.au/media/ama-calls-coal-seam-gas-health-checks>):

“Despite the rapid expansion of CSG developments, the health impacts have not been adequately researched, and effective regulations that protect public health are not in place. There is a lack of information on the chemicals used and wastes produced, insufficient data on cumulative health impacts, and a lack of comprehensive environmental monitoring and health impact assessments... In circumstances where there is insufficient evidence to ensure safety, AMA recommends that the precautionary principle should apply. This is essential given the threat of serious and irreversible harms to human health”.

The AMA's Federal Council also passed a policy resolution *“urging governments to ensure that:*

- all existing coal seam gas extraction projects are regularly monitored for any health impacts and the presence of air and ground-water pollutants in their local environment;

- all future proposals for coal seam gas mining are subject to rigorous and independent health risk assessments, which take into account the potential for exposure to pollutants through air and groundwater and any likely associated health risks. In circumstances where there is insufficient evidence to ensure safety, the precautionary principle should apply.”

A network of health organisations joined together to vocalise serious concerns about energy *“policies that privilege and prioritise the extraction and combustion of fossil fuels over safer, healthier, lower emissions, renewable energy resources”*. A joint statement (http://caha.org.au/wp-content/uploads/2010/01/Joint-state-ment-on-the-health-effects-of-Australias-minerals-and-energy-policy_130213.pdf) was signed by Public Health Association of Australia, Climate and Health Alliance, Heart Foundation, National Rural Health Alliance, Climate Change Health Research Network, Cancer Council Australia, Australian Healthcare and Hospitals Association, Australian Research Alliance for Children and Youth, National Toxics Network, Australian Physiotherapy Association, and NSW Nurses and Midwives' Association. It concludes:

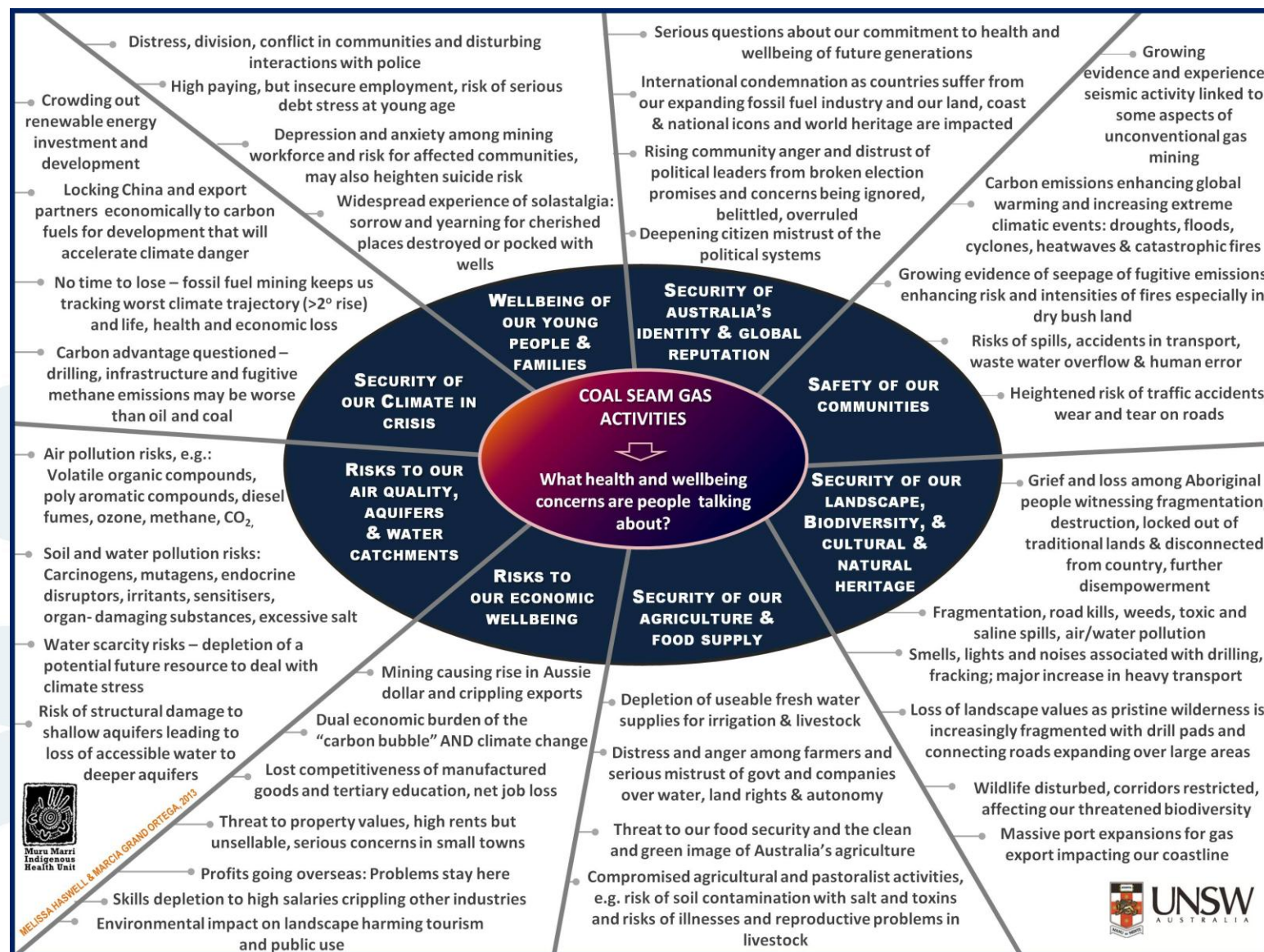
“Health professionals have an important role to play in educating decision makers and the community about the health implications of energy choices and the health implications of climate change. The local and global effect of fossil fuel use on health and wellbeing is an immediate problem as well as an issue of intergenerational equity, with the exploitation of these resources causing irreversible harm to Earth's systems, compromising the health and security of future generations.”

A recent DEA report entitled, *“The health factor: ignored by industry, overlooked by government”* (http://dea.org.au/images/general/_DEA_-_The_Health_Factor_05-13.pdf) presented “inescapable conclusions” that the current level of assessment, monitoring and regulation of mining operations are failing to protect the health of current and future generations of Australians.

Conclusion

There are now clearly articulated warnings among public health and medical organisations that unconventional gas mining poses multiple serious threats to human health and the environment. Communities, individuals, academics and doctors are calling upon the government to recognize these risks and to protect the health and future of our residents, families, communities, climate and environment of Australia.

Appendix 2. Comprehensive image showing the wide range of risks and concerns associated with coal seam gas activities



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Appendix 3. Diagram highlighting the pressures of increasing population and changing climate and risks associated with CSG activities in our water catchments

