

Submission on the Mineral Resources (Galilee Basin) Amendment Bill 2018

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Healthy planet, **healthy people.**

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Doctors for the Environment Australia (DEA) is an independent, non-government organisation of medical students and doctors in all Australian States and Territories. Our members work across all specialties in community, hospital and private practices. We work to minimise public health impacts and address diseases - local, national and global - caused by damage to our natural environment.

DEA's primary role is to highlight the vital link between human health and our environment. We recognise the invaluable role that healthy ecological systems have in providing humans with clean air and water, fertile soils, and that our environment has cultural and societal significance. Our future wellbeing depends on us maintaining and protecting our natural environment.

DEA supports the Mineral Resources (Galilee Basin) Amendment Bill 2018 for the following reasons:

1. The Galilee Basin coal mining projects' contribution to climate change.
2. Climate change's direct and indirect negative and harmful effects on human health.
3. The uncertainty existing around the impacts of coal mining projects on the surface and ground water resources of the Galilee Basin.
4. The impact of coal mining projects on the Galilee Basin's endangered and vulnerable species, and the negative impacts on the Great Barrier Reef.
5. The negative health impacts of air pollution generated in the mining, transport and burning of coal.

Climate change and human health

Over the past 150 years, atmospheric CO₂ levels have risen from 280ppm to over 400ppm, a 46% increase that is accompanied by rising global temperatures. Human activities are the cause through the burning of fossil fuels and deforestation. Global warming is changing our climate with immediate and long-term effects on human health.² In Australia, a country already vulnerable because of our hot and dry climate, we are experiencing increased frequency and intensity of droughts and bushfires, and more extreme weather events such as prolonged heatwaves, storms and floods.³ Ecosystem disruption from extreme weather poses clear threats to the fundamental determinants of health, such as clean water, clean air, food security, freedom from infectious disease, stable climate, and adequate shelter.⁴ On a global scale, the impacts of excessive heat on economic productivity and indirect effects such as migrations due to food and water shortages are already being seen.⁵

Climate change has been described by the Lancet Commission on Climate Change and Health as *the greatest global health threat of the 21st century*⁶. A recent report by the World Health Organization (WHO) warned that "*the severity of impacts of change on health are increasingly clear and threatens to undermine the last 50 years of improvements in health.*"⁷

It is not possible to overemphasise the enormity of the health, economic, security and environmental costs of an inadequate response to global warming.

Galilee Basin coal and climate change

The expansion of coal mining activities is incompatible with our global obligations to combat climate change.

Australia is a signatory to the 2015 Paris Agreement and, together with 173 other countries, has pledged to take responsibility to reduce greenhouse gas emissions (GHG) to assist in limiting global warming to 2°C or less.

The most recent Intergovernmental Panel on Climate Change (IPCC) report (October 2018) has confirmed that much stronger action on a global scale is urgently needed to achieve the deep GHG emission cuts required to limit disruption due to climate change. The report gives us just 12 years to make drastic cuts in emissions if we are to limit global warming to 1.5°C. At our current emissions rates, projections of a rapid 3-4 degrees of warming will amplify current threats to human health and development.⁸ In Australia, our greenhouse gas emissions are increasing, and we are

unlikely to reach our Paris Agreement commitments, even without opening up coal reserves in the Galilee Basin.⁹

Australia is the world's largest coal exporter.¹⁰ Climate change is a global problem and it is facetious to not include exported coal in Australia's carbon budget. Currently, scope 3 emissions and climate impacts are not included in the approval of new fossil fuel developments, which is inadequate in the current state of global action to limit climate change.¹¹ If Australia is to be a respected leader in tackling climate change – which we are well placed to become despite policy inaction to this point – there needs to be full accountability of the climate impacts and scope 3 emissions of coal mining projects.

In fact, if we are to make a concerted effort to meet our global obligations, more than 90% of Australia's coal reserves need to remain in the ground. If all the coal in the Galilee Basin were burnt, it would cumulatively emit 705 million tonnes of CO₂ every year, more than 1.3 times Australia's total current annual emissions. If the Galilee Basin were a country in its own right it would rank among the top 15 greenhouse gas emitting nations.¹²

Land use is the second largest human influence on the global climate.² Adani's Carmichael coal mining project, one of only seventeen proposed in the area, would require 20,200 hectares of land to be cleared, over half of which is mature woodland, bushland and riparian growth.¹³

It is clear that further expansion of coal mining is incompatible with our commitments to mitigate climate change. Any consideration of coal mining in the Galilee Basin highlights the serious disconnect between genuine government commitment to emissions reduction policies, both domestically and as a signatory to the Paris Agreement.

Impacts of coal mining projects on water resources

As we experience higher temperatures, protracted droughts and a more variable climate, it is essential to sustainably manage our water resources to ensure future generations have sufficient potable water and water for irrigation, agriculture and socio-cultural use. Since 2011, DEA has made 3 submissions to the Government regarding the Carmichael mining project, and these documents detail the harmful health impacts of mine-associated water usage, as well as the polluting effects of run-off into the Great Barrier Reef catchment area.¹⁴

Adani's Carmichael Mine and Rail Infrastructure Project has applied for and been granted a licence to use 12.5 GL of water per year from local river

systems through the North Galilee Water Scheme (NGWS).^{15, 16} It has also been provisionally granted unlimited groundwater, to be drawn from the Great Artesian Basin.¹⁷ NGWS could potentially be offered for use to other mining projects in the region but with no clear details on how many projects it is expected to supply, or if this would mean increasing the volume of water extraction.

In their assessment of Adani's Carmichael Coal Mine and Rail Infrastructure Project (EPBC 2010/5736), the Interim Expert Scientific Committee on coal seam gas and large coal mines advised that the cumulative impacts of the Carmichael Project on water be thoroughly and independently assessed and be used to influence scheduling of further development phases, of which NGWS is clearly one. If NGWS forms part of much larger coal mining actions, it adds further weight to the need for full assessment of mining impacts under the water trigger.

The Expert Scientific Committee report made it clear that the complicated underwater system for the Galilee Basin has wide communication with the Great Artesian Basin and has to be assessed as one entity. The report advised in 2012 that surface and ground water impacts of mining have a high level of uncertainty and the cumulative impacts are unknown.¹⁸

These issues had not been readdressed until December 2018, with the release of a bioregional assessment, "Outcome Synthesis for the Galilee Subregion" written jointly by CSIRO, Geosciences Australia, BOM and the federal Department of Environment and Energy.¹⁹ The report modelled information from seven of seventeen proposed coal mines in the Galilee Basin. Amongst key findings is a greater than 95% chance that mining drawdowns will cause hydrological changes in the Belyando River Basin. Modelling indicates that two areas near the cluster of mines in the east, in an area of 2,820 km² were very likely to experience more than 0.2m of drawdown, and that there was a 50% likelihood that more than 1,000 km of surface water streams would experience more zero flow days per year than average. It was also found that changes will affect a larger area of groundwater drawdown in the near surface aquifer (14,030 km²), and total length of streams (6,285 km) than previously predicted. The report found that water flow changes would impact the habitat of twelve threatened species and two ecological communities.^{18, 19}

CSIRO found that Adani's Groundwater Dependent Ecosystem Management plan (GDMP) is flawed and that Doongmabulla Springs, a nationally important wetland could be negatively impacted by groundwater drawdown. The source of the Doongmabulla Springs is unknown.^{18, 19, 20}

It remains evident that the potential impacts of mining operations in the Galilee Basin, an arid region already vulnerable to drought, have not been adequately examined.

Finally, DEA is concerned that the 270 conditions imposed in granting water licences to Adani will be difficult and onerous for the government to properly monitor and regulate, and will therefore be insufficient in protecting these water resources.^{17, 21}

The negative impacts on the Great Barrier Reef

The Great Barrier Reef, in addition to its intrinsic value as a World Heritage Area is Australia's most inspiring natural icon. The Reef supports coastal communities by providing employment (approximately 69,000 jobs), protection from coastal erosion, food, leisure opportunities and is part of vital ecosystems. The Reef has already suffered two back-to-back coral bleaching events in 2016 and 2017. Scientific assessment of recurrent bleaching events on the reef identified climate change as the most significant contributor. The reef is at risk of further damage or even loss if we do not actively mitigate against climate change.^{8, 12}

Negative health impacts from pollution generated by mining, transport and burning of coal

Coal is the world's most polluting fossil fuel. Apart from its direct contribution to greenhouse gases and global warming, it is an important cause of air pollution. Data from The Lancet showed an increase in global deaths from fine particulate air pollution, of which coal is a major source, from 3.5 million in 1990 to 4.2 million in 2015.²² Fine particle pollution contributes significantly to illness and death from strokes, heart disease, lung disease and cancer. In India, where coal from Adani's mine is destined to be burnt, coal-fired power stations contribute to air pollution that leads to the premature deaths of an estimated 1.1 million people per year and affects many more with minor and major illnesses.²³ A multi-country study examining the public health implications of electricity and coal consumption found that increased electricity consumption in countries with an infant mortality <100/1,000 live births (e.g. India) does not lead to greater health benefits and that coal consumption has significant detrimental health impacts.²⁴

Domestically, mining activities would significantly increase air pollution associated with coal transport along the rail corridor between the Galilee

Basin and the Abbott Point coal terminal. Alarming, the re-emergence of coal workers pneumoconiosis, or Black Lung Disease, in Queensland highlights the risks associated with coal mining and inadequacies in regulations and effective safeguards within the industry and relevant regulatory bodies to protect human health.²⁵

In conclusion, there are compelling reasons the Mineral Resources (Galilee Basin) Amendment Bill 2018 should be approved. The risks to water security, ecosystems and air pollution are cause enough, but again, it is not possible to overemphasise the enormity of the health, economic, security and environmental costs of an inadequate response to global warming. It is future generations who will bear the brunt of our failure to heed the warnings that climate change is the biggest health threat of the 21st century.

DEA would welcome the opportunity to speak to this submission. We would also very much appreciate a formal response to our submission and formal advice on the outcome of this submission process.

*Adani Infrastructure's North Galilee Water Scheme submission 2018*²⁶

Submission to the Carmichael Coal Mine and Rail Project EIS 02.13:

Submission to the Carmichael Coal Mine and Rail Project EIS and Supplementary EIS 12.13:

*Carmichael Coal Mine and Rail Project Draft TOR for an EIS:*²⁷

*Factsheet on the Adani's Carmichael coal mine and health:*²⁸

*Factsheet on Coal's Toll on Health*²⁹

*Factsheet on Climate Change and Health in Australia*³⁰

References

¹ <https://www.parliament.qld.gov.au/work-of-committees/committees/SDNRAIDC/inquiries/current-inquiries/13MRGB>

² Hanna EG, McIver, L. Climate Change: a brief overview of the science and health impacts for Australia. MJA. 2018;7(16):311-5.

³ <https://www.dea.org.au/climate-change-and-health-in-australia-fact-sheets/>

⁴ Woodward A, Smith AR, Campbell-Lendrum D, Chadee DD, Honda Y, et al. (2014). Climate change and health: on the latest IPCC report. *The Lancet* **838**(9924): 1185-1189.

⁵ [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)32594-7/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)32594-7/fulltext)

⁶ [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)60931-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60931-X/fulltext)

⁷ WHO (2018). COP 24 special report: health and climate change. World Health Organisation

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- ⁸ IPCC (2018). Special report: Global warming of 1.5 degrees C. <https://www.ipcc.ch/sr15/>
- ⁹ Bourne G SA, Steffen W, Stock P, Brailsford L. Working paper: Australia's rising greenhouse emissions. 2018. https://www.climatecouncil.org.au/wp-content/uploads/2018/06/CC_MVSA0143-Briefing-Paper-Australias-Rising-Emissions_V8-FA_Low-Res_Single-Pages.pdf
- ¹⁰ <http://www.worldstopexports.com/coal-exports-country/>
- ¹¹ <http://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy>
- ¹² Steffen.W. Galilee Basin - Unburnable Coal. The Climate Council; 2015.
- ¹³ Australian Marine Conservation Society. Adani's Carmichael Coal Mine and Rail Project: factsheet2017. Available from: <https://www.marineconservation.org.au/pages/adani-carmichael-coal-mine-rail-project-factsheet-.html>.
- ¹⁴ DEA. Submissions to the Carmichael Coal Mine and Rail Project EIS and Supplementary EIS [Available from: <https://www.dea.org.au/submissions-to-the-carmichael-coal-mine-and-rail-project-eis-and-supplementary-eis-healthy-planet-healthy-people-dea/>]
- ¹⁵ EPBC Act referral - North Galilee Water Scheme (NGWS)Project. 2018.
- ¹⁶ EDO, 2017. Adani Carmichael Project receives water licenses – what does this mean? Available at: <http://www.edoql.org.au/news/adani-pending-water-licence/>.
- ¹⁷ Queensland Government. Media Statements: Carmichael licences safeguard water. 2017.
- ¹⁸ IIESC. Advice to decision maker on coal mining project EPBC 2010/5736 2012 [Available from: <http://www.iesc.environment.gov.au/system/files/resources/fc3719de-55c6-4bac-abaa-409733668f3d/files/iiesc-advice-carmichael.pdf>]
- ¹⁹ Bioregional Assessments: Outcome synthesis for the Galilee subregion 2018 [Available from: <https://www.bioregionalassessments.gov.au/assessments/5-outcome-synthesis-galilee-subregion>]
- ²⁰ Willacy M. Adani's key water management plan is flawed and used some unverified data, CSIRO says2018. Available from: <https://www.abc.net.au/news/2018-12-17/adani-water-management-plan-criticised-by-csiro/10625228>.
- ²¹ DEA. Adani's Carmichael Coal Mine and Health: fact sheet 2017 [Available from: https://www.dea.org.au/wp-content/uploads/2017/05/DEA-Adani-Long-Fact-Sheet_final.pdf]
- ²² https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet_final.pdf
- ²³ Landrigan PJ, Fuller R, Acosta NJR, Adeyi O, Arnold R, Basu N, et al. The Lancet Commission on pollution and health. The Lancet. 2018;391(10119):462-512.
- ²⁴ Gohike J et al Estimating the Global Public Health Implications of Electricity and Coal Consumption. Environ. Health Perspectives 2011 Jun; 119(6): 821–826.
- ²⁵ Parliamentary Committees, 2017. Inquiry into the re-identification of Coal Worker's pneumoconiosis in Queensland - interim report. 2017.
- ²⁶ [https://www.dea.org.au/wp-content/uploads/2018/06/EPBC-2018-8191_North-Galilee-Water-Scheme-\(NGWS\)-Project-06-18.pdf](https://www.dea.org.au/wp-content/uploads/2018/06/EPBC-2018-8191_North-Galilee-Water-Scheme-(NGWS)-Project-06-18.pdf)
- ²⁷ <https://www.dea.org.au/submissions-to-the-carmichael-coal-mine-and-rail-project-eis-and-supplementary-eis-healthy-planet-healthy-people-dea/>
- ²⁸ <https://www.dea.org.au/adanis-carmichael-coal-mine-and-health/>
- ²⁹ https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet_final.pdf
- ³⁰ https://www.dea.org.au/wp-content/uploads/2017/02/DEA_Climate_Change_Health_Fact_Sheet_final.pdf