

# Submission on the Galilee Basin (Coal Prohibition) Act 2018

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Healthy planet, **healthy people.**

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Submission in response to the Galilee Basin (Coal Prohibition) Act 2018<sup>1</sup>

Doctors for the Environment Australia (DEA) is an independent, self-funded, non-government organisation of medical 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 the diseases – local, national and global – caused by damage to our natural environment.

## **Doctors for the Environment Australia supports the Galilee Basin (Coal Prohibition) Act 2018 for the following reasons:**

1. Climate change's negative impact on health.
2. The Galilee Basin coal projects' contribution to climate change.
3. The improperly understood impacts on the water resources of the Belyando sub-catchment and the Great Artesian Basin.
4. The negative impacts of coal-mining on the Great Barrier Reef.
5. The negative health impacts from pollution generated in the mining, transport and burning of coal.

## **Climate change and health**

Human use of fossil fuels is the primary cause of both global warming and ambient air pollution, resulting from the release of greenhouse gases (carbon dioxide and methane) and other pollutants (particulate matter, nitrogen oxides and other gases) into the atmosphere during mining and combustion<sup>2, 3</sup>. Climate change caused by increasing atmospheric greenhouse gas concentrations has been described by the Lancet Commission on Climate Change and Health as the greatest health threat of the 21 Century, with unprecedented implications for nearly all aspects of human health and well-being<sup>4, 5</sup>.

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

A recent report by the World Health Organization (WHO) warned that "the severity of impacts of climate change on health are increasingly clear, and further delay in action will increase the risks"<sup>6</sup>. Globally, climate change threatens to undermine the last 50 years of improvements in health<sup>7</sup>. Climate change is already affecting human health in Australia - with

increased frequency and intensity of droughts and extreme weather events such as heatwaves, storms and flooding and the immediate and long-term health impacts that these events cause <sup>8</sup>.

In 2018, there are many reasons to be seriously concerned about the climate change implications of continued reliance on and expansion of the coal industry.

## **Galilee Basin coal and climate change – the expansion of coal mining activities is incompatible with our global obligations to tackle climate change.**

Coordinated global efforts are required to rapidly transition away from the use of fossil fuels. Australia is a signatory to the 2015 Paris Agreement which, together with 173 other countries, have pledged to take responsibility for reducing greenhouse gas emissions and assist in limiting global warming to 2°C.

The recent IPCC report has confirmed that much stronger action on a global scale is necessary to limit climate change. Without major cuts in carbon dioxide emissions we could see 1.5 degrees of warming in just 12 years<sup>9</sup>.

Australia is the world's largest coal exporter. 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 <sup>10</sup>. If Australia is to be a respected leader in tackling climate change – which we are well placed to become despite the policy inaction to this point – there needs to be full accountability of the climate impacts and Scope 3 emissions of coal mining projects.

Calculations of Australia's fair share of the global carbon budget means that 90% of Australian coal reserves need to stay in the ground to limit climate change to below 2 degrees. In short, no carbon budget is left for new coal mines in Australia, and even existing ones will need to be retired before being fully exploited. As the Climate Council estimated, if all the coal from the Galilee Basin were burnt it would cumulatively emit an estimated 705 million tonnes of carbon dioxide (CO<sub>2</sub>) every year. This equates to more than 1.3 times Australia's current annual emissions, and if a country in its own right, would rank amongst the top 15 greenhouse gas emitting countries <sup>11</sup>.

Land clearing associated with mining will add to climate impacts. The Adani Carmichael mine project alone would require 20,200 hectares of cleared land, over half of which is mature woodland and bushland <sup>12</sup>.

Further expansion of coal mining is incompatible with action to mitigate climate change<sup>13</sup>. The Australian Government's 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 and the approval of new coal mining projects.

## **The significant and improperly understood impacts on the water resources of the Suttor River, the Suttor-Belyando sub-catchment and the Great Artesian Basin**

As higher global temperatures are making our climate hotter and more variable, it is essential to sustainably manage our water resources to ensure future generations have sufficient potable water, irrigation for agriculture and functioning natural ecosystems. Since 2011, DEA has made three submissions to Government on the Carmichael mine proposal which detail the health impacts of water usage and also the effects of runoff to the Great Barrier Reef <sup>14</sup>.

Through the North Galilee Water Scheme (NGWS) the Adani Carmichael project has been granted a water licence for the use of 12 million litres/year from local river systems in a region susceptible to drought. It has also been granted unlimited groundwater use, drawn from the Great Artesian Basin, with the law changed to allow this <sup>15</sup>.

The NGWS could also potentially be offered for use by other mining concerns. The proponents do not clearly state how much water would be made available to other projects, how many projects it expects to supply, or if this would mean increasing their take of 12 million litres/year.

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 regional cumulative impacts be thoroughly 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 therefore 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 the surface and groundwater impacts of mining have a high level of uncertainty and the cumulative impacts are unknown <sup>16</sup>.

The important need for a cumulative study of water usage from all Galilee mines was discussed in detail in the DEA submission on the China Stone mine in 2011 and in several other submissions on the Carmichael mine and on Kevin's Corner and China First projects <sup>17</sup>.

These needs have not been readdressed until the latest bioregional assessment on water impacts was released in December 2018. It was compiled by experts from the CSIRO, Geosciences Australia, BOM and the federal Department of Environment and Energy. The report modelled information from seven of seventeen proposed coalmines in the Galilee Basin. Amongst key findings is a greater than 95% chance that mining drawdowns will cause hydrological changes to the Belyando River Basin. These changes affect a larger area of ground water drawdown in the near-surface aquifer (14,030 km<sup>2</sup>), and total length of streams (6,285 km) than previously predicted from any individual mine-scale impact assessments. There is a 50% chance that more than 1,000 kilometres of streams would have additional "zero flow" days per year as a result of coal mining. The study also found that the habitat of 12 threatened species and two ecological communities were also potentially at risk due to changes in water flows <sup>18, 19</sup>.

## **The negative impacts on the Great Barrier Reef**

Coal mining in the Galilee Basin directly and indirectly risks the Great Barrier Reef – one of our most important ecological support systems and a great natural wonder of the world. The Great Barrier Reef has already suffered two back-to-back severe bleaching events in 2016 and 2017, caused by warming water. Scientific assessment of recurrent bleaching events on the reef identified climate change as a significant contributor – which if not mitigated will bring its demise <sup>20</sup>.

Approximately 69,000 jobs are generated by reef industries <sup>21</sup> and according to Tourism Queensland, more than 860,000 people visited the Great Barrier Reef in North Queensland in the 2013-14 financial year <sup>22</sup>. Further damage or even loss of the Reef would lead to significant unemployment and the subsequent poor health and social outcomes on those affected and their families.

The Adani coal mine project alone could result in an increase of up to 520 ships travelling through the Great Barrier Reef each year, with associated risk of impacts from chemical and oil spills, and grounding incidents in the Reef (Adani Abbot Point Terminal EIS, 2013)

## The negative health impacts from pollution generated in the mining, transport and burning of coal

The mining and burning of coal are significant sources of fine particle pollution, which contribute to heart disease, lung diseases and cancer, and produce other hazardous air pollutants, including dioxide, nitrogen oxides, mercury and arsenic. Air pollution will be a significant risk associated with the coal dust from coal transport at the Australian port terminal and along the rail corridor <sup>23</sup>.

Recently published 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. 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 <sup>24</sup>.

In India, where coal from the Adani mine is destined to be burnt, coal-fired power stations contribute to the air pollution that leads to the premature death of an estimated 1.1 million people per/year and affects many more with minor or serious illnesses <sup>25</sup>.

Previous DEA publications around coal-mining in the Galilee Basin -  
*Adani Infrastructure's North Galilee Water Scheme submission 2018*<sup>26</sup>  
*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:*<sup>27</sup>  
*Factsheet on the Adani's Carmichael coal mine and health:*<sup>28</sup>  
*Factsheet on Coal's Toll on Health*<sup>29</sup>  
*Factsheet on Climate Change and Health in Australia*<sup>30</sup>

## References

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[https://www.aph.gov.au/Parliamentary\\_Business/Committees/Senate/Environment\\_and\\_Communications/GalileeBasinBill2018](https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/GalileeBasinBill2018)

<sup>2</sup> IPCC, 2013. Summary for Policymakers. In T. Stocker et al., eds. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press, pp. 1–29.

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- <sup>3</sup> IPCC (2018). *Global warming of 1.5°C*. Intergovernmental Panel on Climate Change Special Report. United Nations Environment Program and World Meteorology Organisation, Geneva
- <sup>4</sup> 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.
- <sup>5</sup> Watts N, Adger WN, Agnolucci P et al. (2017). The Lancet Countdown on Health and Climate Change: from 25 years of inaction to a global transformation for public health. *The Lancet*, Available: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)32464-9/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)32464-9/fulltext)
- <sup>6</sup> WHO (2018). COP 24 special report: health and climate change. World Health Organisation
- <sup>7</sup> Capon A, Corvalan C (2018). Climate change and health: global issue, local responses. *Public health research and practice*. Vol 28, Issue 4
- <sup>8</sup> <https://www.dea.org.au/climate-change-and-health-in-australia-fact-sheets/>
- <sup>9</sup> IPCC (2018). Special report: Global warming of 1.5 degrees C. <https://www.ipcc.ch/sr15/>
- <sup>10</sup> <http://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy>
- <sup>11</sup> Steffen W. 2015 Galilee Basin Unburnable Coal The Climate Council
- <sup>12</sup> Australian Marine Conservation Society, 2017. Adani's Carmichael Coal Mine and Rail Project: Factsheet. <https://www.marineconservation.org.au/pages/adani-carmichael-coal-mine-rail-project-factsheet-.html>.
- <sup>13</sup> Steffen W (2015). Galilee Basin – unburnable coal. The Climate Council
- <sup>14</sup> Submissions to the Carmichael Coal Mine and Rail Project EIS and Supplementary EIS <https://www.dea.org.au/submissions-to-the-carmichael-coal-mine-and-rail-project-eis-and-supplementaryeis-healthy-planet-healthy-people-dea/>
- <sup>15</sup> EDO, 2017. Adani Carmichael Project receives water licenses – what does this mean? Available at: <http://www.edoqld.org.au/news/adani-pending-water-licence/>.
- <sup>16</sup> <http://www.iesc.environment.gov.au/system/files/resources/fc3719de-55c6-4bac-abaa-409733668f3d/files/iiesc-advice-carmichael.pdf>
- <sup>17</sup> <https://www.dea.org.au/wp-content/uploads/2012/12/China-Stone-Submission-12-12.pdf>
- <sup>18</sup> <https://www.theguardian.com/environment/2018/dec/15/galilee-mine-plans-understated-water-impact-government-report-says>
- <sup>19</sup> <https://www.bioregionalassessments.gov.au/assessments/5-outcome-synthesis-galilee-subregion>
- <sup>20</sup> Hughes T and Kerry, 2017 Back to back bleaching has now hit two-thirds of the Great Barrier Reef. The Conversation. Available at <https://theconversation.com/back-to-back-bleaching-has-now-hit-two-thirds-of-the-great-barrier-reef-76092>
- <sup>21</sup> Deloitte Access Economics 2013, Economic contribution of the Great Barrier Reef, Great Barrier Reef Marine Park Authority, Townsville. Available at <http://www.environment.gov.au/sustainability/publications/economic-contribution-great-barrier-reef-march-2013>
- <sup>22</sup> Tourism, Tropic North Queensland. 2014. Fact Sheet. Great Barrier Reef – Economic value. Available at <http://media.ttnq.org.au/documents/9-483dffceff1d4c611ee5afbb6264eca.pdf>.
- <sup>23</sup> <https://www.dea.org.au/the-health-toll-of-coal-fact-sheet/>
- <sup>24</sup> [https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet\\_final.pdf](https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet_final.pdf)
- <sup>25</sup> Health Effects Institute, 2017. State of Global Air 2017: A Special Report on Global Exposure to Air Pollution and Its Disease Burden. Available at: <http://www.ccacoalition.org/en/resources/state-global-air2017-special-report-global-exposure-air-pollution-and-its-disease-burden>.
- <sup>26</sup> [https://www.dea.org.au/wp-content/uploads/2018/06/EPBC-2018-8191\\_North-Galilee-Water-Scheme-](https://www.dea.org.au/wp-content/uploads/2018/06/EPBC-2018-8191_North-Galilee-Water-Scheme-)

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[\(NGWS\)-Project-06-18.pdf](#)

<sup>27</sup> <https://www.dea.org.au/submissions-to-the-carmichael-coal-mine-and-rail-project-eis-and-supplementary-eis-healthy-planet-healthy-people-dea/>

<sup>28</sup> <https://www.dea.org.au/adanis-carmichael-coal-mine-and-health/>

<sup>29</sup> [https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet\\_final.pdf](https://www.dea.org.au/wp-content/uploads/2017/07/DEA-Health-Toll-of-Coal-Fact-Sheet_final.pdf)

<sup>30</sup> [https://www.dea.org.au/wp-content/uploads/2017/02/DEA\\_Climate\\_Change\\_Health\\_Fact\\_Sheet\\_final.pdf](https://www.dea.org.au/wp-content/uploads/2017/02/DEA_Climate_Change_Health_Fact_Sheet_final.pdf)