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CLIMATE AND
HEALTH
ALLIANCE

Submission to Hazelwood Mine Fire Inquiry

August 2015

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About the Climate and Health Alliance

The Climate and Health Alliance (CAHA) is a not-for-profit organisation that is a national alliance of organisations and people in the health sector working together to raise awareness about the health risks of climate change and the health benefits of emissions reductions.

CAHA's members recognise that health care stakeholders have a particular responsibility to the community in advocating for public policy that will promote and protect human health.

Membership of the Climate and Health Alliance includes a broad cross section of the health sector with 27 organisational members, representing hundreds of thousands of health care professionals from a range of disciplines, health care service providers, institutions, academics, researchers, and health consumers.

The Climate and Health Alliance, as its name suggests, is concerned with the health threats from climate change, and the organisation works to raise awareness of those risks and advocate for effective societal responses, including public policies, to reduce risks to health.

Part of this work involves examining and seeking to mitigate the drivers of climate change, which in large part (in terms of Australia's contribution) arise from the burning of fossil fuels for energy and transport.

The focus of work is concerned with the health implications of these drivers, both from the perspective of health concerns from climate change, but also in relation to the direct and immediate health impacts associated with burning fossil fuels (from coal in particular).

To this end, the Climate and Health Alliance has produced a number of submissions in relation to national energy policy and other matters relating to climate change, and its impacts on health. CAHA produced the report "Coal and Health in the Hunter: Lessons from One Valley for the World"; the report 'Our Uncashed Dividend' with The Climate Institute on the health benefits of reducing greenhouse gas emissions; conducted a national Roundtable on the Health Implications of Energy Policy; prepared a Briefing Paper on the same topic; produced a film on the risks to health and climate from coal and gas, The Human Cost of Power; conducted a national Forum on Climate and Health: Research, Policy and Advocacy; led the development of a joint health stakeholder Position Paper on Health and Energy Choices; and has contributed to numerous conferences, community dialogues, and forums, both nationally and internationally on these issues.

The topic of energy and health, and therefore coal and health, is a topic on which CAHA has considerable expertise and interest. The Climate and Health Alliance makes this submission as a group of health organisations out of concern about the circumstances surrounding the coalmine fire at Morwell and the consequent health and wellbeing impacts on the local community.

For more information about the membership and governance of the Climate and Health Alliance, please see Appendix A. For further information see www.caha.org.au

Key points

- The Hazelwood Coal Mine Fire was a preventable catastrophe that put the lives and health and wellbeing of local residents, firefighters, power stations workers, and the Latrobe Valley community at risk of serious adverse short term and long term health consequences.
- There is considerable evidence regarding the increasing likelihood of bushfire threats to coal assets in Victoria and yet those risks were ignored by the coal mine owner and the state government failed to monitor compliance with required risk assessments.
- The extensive international literature that exists regarding the risks to health from coal combustion was not taken into account in the evaluation of risks nor in the advice provided to the local community about exposure to pollution arising from the coal mine fire.
- The community in Morwell and in the Latrobe Valley have been exposed to avoidable health risks and are experiencing ongoing anxiety and concerns due to uncertainty regarding the long-term implications of exposure.
- The community of Morwell and those in the vicinity of coal mines and coal fired power stations in Latrobe Valley, and elsewhere in Victoria and Australia, have been treated like 'sacrifice zones', where the risks for local communities have been knowingly ignored by coal companies and governments.
- The coal mine fire at Morwell highlights the local risks associated with extreme weather events associated with unmitigated climate change, and emphasises the urgent need for a regional economic development plan to assist in the region's transition to a low carbon local economy.
- The Morwell community should be a key partner in developing an economic transition plan that will create new dynamic healthy and sustainable local industries and services to create a secure economic base and local employment.

A preventable health emergency

The coal mine fire at Morwell was a preventable health emergency that was managed poorly by the health department, by the government, and by the coal mine owner. The response was too little and too late.

During the period of the fire at the Hazelwood mine near Morwell from 9th February 2014 to 27th February 2014, the advice from the Victorian Department of Health was that there were minimal risks to health from the fire and no long term health risks.

This advice was at odds with the views of public health experts and the evidence from the scientific health and medical literature^{1,2} that burning coal poses serious adverse health risks

¹ Physicians for Social Responsibility, 2009, Coal's Assault on Human Health.

² Smith, K. et al. 2013. Energy and Human Health, *Annual Review of Public Health*, Vol. 34: 159-188.

for people in proximity to power stations and even for communities quite distant from the source.

The levels of air pollution in and around Morwell at the time of the coal mine fire were extraordinarily high. Air Quality Index levels were measured to be as high as 1629 on the 25th of February (when over 150 is considered very poor) and remained continually above 150 for days.

There are significant risks to health for people who are exposed to particulate matter as a component of air pollution and in particular, fine particles (PM_{2.5}). PM_{2.5} particulate matter has been classed by both the World Health Organisation and the International Agency for Research on Cancer as a class 1 carcinogen.³

The American Heart Association published a Scientific Statement on Particulate Matter Air Pollution and Cardiovascular Disease in 2010, which stated:⁴

“Exposure to PM <2.5 µm in diameter (PM_{2.5}) over a few hours to weeks can trigger cardiovascular disease–related mortality and nonfatal events; longer-term exposure (e.g. a few years) increases the risk for cardiovascular mortality to an even greater extent than exposures over a few days and reduces life expectancy within more highly exposed segments of the population by several months to a few years.”

On the 27th February, 24 readings from air quality monitoring in the Latrobe Valley indicated average levels of PM_{2.5} as 279.7ug/m³. The WHO standard is 25ug/m³.

These same levels of exposure in the US would be considered 'hazardous' by the USEPA and would trigger “health warnings of emergency conditions” as the entire population is likely to be affected.⁵

This calls into the question advice from Victorian Department of Health to the local community that "we don't expect that there will be any long-term health effects, based on what we're seeing from the EPA at the moment".⁶ The reference by the Victorian Department of Health to long-term effects in the context of a shorter, acute exposure served to downplay the more immediate health risks, which were sufficiently serious to prompt evacuation advice from independent

³ Loomis D, Grosse Y, Lauby-Secretan B, El Ghissassi F, Bouvard V, Benbrahim-Tallaa L, et al. The carcinogenicity of outdoor air pollution. *The Lancet Oncology*. 2013; Vol 14(13):1262-3.

⁴ American Heart Association, 2010, AHA Scientific Statement on Particulate Matter Air Pollution and Cardiovascular Disease: An Update to the Scientific Statement From the American Heart Association. Available here: <http://circ.ahajournals.org/content/121/21/2331.abstract>

⁵ http://airnow.gov/index.cfm?action=resources.aqi_conc_calc

⁶ <http://www.theage.com.au/victoria/health-expert-says-no-longterm-risk-to-morwell-residents-from-smoke-haze-20140224-33d4d.html>

experts on 27th February.⁷ Referring to long term risks in the short-term situation may have contributed to residents' confusion about overall risk levels. The Climate and Health Alliance acknowledge the Board of Inquiry's recognition that current acute exposure standards are too high, and support the Board's recommendation that these standards should be reviewed in line with international evidence.⁸

It is suggested there were a number of failures on the part of both the mine owner and successive Victorian governments. This includes unsatisfactory fire prevention; failure of the mine owners to adequately rehabilitate the disused mine; and the failure of successive governments to require appropriate liability bonds should disasters occur.⁹

Sacrifice zone

The risks to the community adjacent to the Hazelwood coal mine have been ignored since the mine was first approved in 1945; with the open cut coal mine dug just 400m from the town's southern edge.¹⁰ Fires have occurred repeatedly throughout the life of the mine – an average of 300 per year, according to a recent book on the topic.¹¹ A major fire broke out in 1977, following which a review committee recommended increasing fire suppression equipment (water pipes) to prevent future fires. As we now know, this did not occur, and in 1996, the owners of the mine removed water pipes, leaving the huge and highly flammable open cut mine cut without an adequate fire suppression system.¹² The decision to remove fire suppression equipment, in the context of a highly flammable substance, that exists in mass quantities, openly exposed to a known fire zone environment, represents a gross dereliction of duty of care to the surrounding communities. The fire risk was eminently foreseeable. Government sanctioning of this decision leaves the representative bodies, charged with protecting the public also culpable.

Like many coal communities across the world, the people of Morwell and surrounding regions were treated by governments and the industry as a 'sacrifice zone'.¹³

In the week preceding the 2014 fire, there were extensive warnings across the Gippsland region with regard to "dangerous fire weather" for a number of days prior to 9th February 2014. Hot, dry

⁷ McNerney, M. 2014, Hazelwood mine fire: health risks and public health response options, Croakey, 27 February. Available at:

http://blogs.crikey.com.au/croakey/2014/02/27/the-hazelwood-fire-health-risks-and-public-health-response-options/?wpmp_switcher=mobile

⁸ Hazelwood Mine Fire Inquiry , Executive Summary, 2014. Available at

<http://report.hazelwoodinquiry.vic.gov.au/executive-summary-2/health-wellbeing>

⁹ McKenzie-Murray, M. 2014, Why Morwell is burning, *The Saturday Paper*, 8 March. Available at

<http://www.thesaturdaypaper.com.au/2014/03/08/why-morwell-burning/1394197200#.U2lyAIGSy7x>

¹⁰ Doig, T. *The Coal Face*, Penguin, 2015.

¹¹ *ibid*

¹² *ibid*

¹³ <http://researchdirect.uws.edu.au/islandora/object/uws:20217>

and windy conditions were forecast; a total fire ban was in place, and people were warned to have their bushfire survival plan ready.^{14,15}

Despite the clear forecast of an acute bushfire threat near Morwell, appropriate prevention measures were not put in place at the Hazelwood mine.

Not only was there little preparation to prevent the mine fire, there was inadequate effort put into fighting the fire when it occurred. It appears the management of the fire was compromised by a decision not to use water resources that could have been used to flood the mine in order to maintain water supply to the adjacent coal fired power station, and prevent any interruption to its operation. This decision to elevate profitability above public interest and responsible risk management is another example of the local community as “sacrifice zone”.

However, the Climate and Health Alliance understands due to lower energy demand in Victoria and in the national electricity market at that time, the Hazelwood Power Station could actually be taken out of service (i.e. shut down) without affecting power supplies.¹⁶

This raises questions as to whether the inconvenience and cost to the mine owners of shutting down the power station was being prioritised over the interests of the local community who were being exposed to air pollution at levels which were ten times air quality levels identified by the EPA Air Quality Index as “very poor”.

Ongoing and future risks

The risk of exposure to air pollution for people in the Latrobe Valley is both long and short term.

The mine fire incident was an episode of acute exposure to severely polluted and toxic air. Emissions from the mine fire and the coal fired power station include harmful pollutants such as sulphur dioxide, nitrogen dioxide, mercury, polyaromatic hydrocarbons, and volatile organic compounds. 11 deaths were directly attributed to the mine fire during February and March of 2014.¹⁷ Many of the consequences of exposure to noxious air pollution are of a chronic nature, and thus the combined exposures of the 2014 mine fire, fires preceding that and the ongoing operation of the coal fired power station are likely to contribute to deaths beyond that period and long into the future.

The National Pollutant Inventory shows the Hazelwood Power Station emits 12,000 tonnes of sulphur dioxide each year; 25,000 tonnes of oxides of nitrogen; 6,900 tonnes of carbon

¹⁴ Country Fire Authority, East Gippsland Fire Update 7th Feb 2014. Available at: <http://news.cfa.vic.gov.au/news/east-gippsland-fire-update-7th-feb.html>

¹⁵ ABC News, Extreme fire threat sparks warning to be prepared, 7 Feb 2014. Available at: <http://www.abc.net.au/news/2014-02-07/extreme-fire-threat-sparks-warning-to-be-prepared/5245006?§ion=news>

¹⁶ Australian Energy Market Operator, 2014. 2014 Electricity Statement of Opportunities Available at: <http://www.aemo.com.au/Electricity/Planning/Electricity-Statement-of-Opportunities>

¹⁷ Barnett, A. Analysis of death data during the Morwell mine fire, 2014. Available at: <http://eprints.qut.edu.au/76230/>

monoxide and 3,100 tonnes of PM10.¹⁸ The Climate and Health Alliance is concerned by recent reports that PM10 emissions from electricity generation have increased in the Valley by 28% during the last five years and PM2.5 emissions have increased by 27%.¹⁹

The “widespread debilitating effects from toxic smoke” understandably concern community groups such as Voices of The Valley.²⁰ Symptoms identified by community members include breathing difficulties, neurological issues, chest pain, stress, anxiety and depression.²¹ Many of these symptoms are expected to continue for months.²¹

Their concerns are echoed by evidence from international literature. A 2013 study from the University of Illinois in Chicago outlines the health risks associated with coal combustion, and notes that the combustion of coal has been “well studied, with compelling evidence of widespread health effects on the population”.²² Air pollution from coal combustion is known to affect the respiratory and cardiovascular systems, cause abnormal neurological development in children, poor growth of the foetus. Air pollution has also been associated with the growth of certain cancers.²³ A recent spate of cancer diagnoses in the region is further escalating community concern, and must be investigated.

The Climate and Health Alliance welcomes the conception of the Hazelwood Mine Fire Health Study, which will provide a valuable addition our understanding of the health impacts of these public health disasters. However in isolation, the study is not a sufficient response to the circumstances currently experienced by Latrobe Valley community members. The Board of Inquiry acknowledges that the Morwell and the Latrobe Valley have higher rates of respiratory and cardiovascular illness than other regions in the state.²⁴ The vulnerability of residents of the Latrobe Valley and the exposure to toxic matter resultant to the mine fire compounds the need for expanded access to health care services in the region. This expansion should take into

¹⁸ National Pollutant Inventory, 2011-12, Electricity Supply Emissions. Available at: <http://www.npi.gov.au/npidata/action/load/emission-by-individual-facility-result/criteria/state/VIC/year/2012/jurisdiction-facility/00004337>

¹⁹ Environment Justice Australia. (2014). Clearing the air: Why Australia urgently needs effective national air pollution laws. Available from: [http://envirojustice.org.au/sites/default/files/files/Submissions and reports/Envirojustice_air_pollution_report_final.pdf](http://envirojustice.org.au/sites/default/files/files/Submissions%20and%20reports/Envirojustice_air_pollution_report_final.pdf).

²⁰ Voices of the Valley Inc, 2014. Research overview, Community Health October 2014. Available from <https://d3n8a8pro7vnmx.cloudfront.net/voicesofthevalley/pages/95/attachments/original/1412947562/VOTV-research-overview-Oct2014.pdf?1412947562>

²¹ ibid

²² Burt, E. et al 2013. Scientific evidence of the health effects from coal use in energy generation. Healthcare Research Collaborative, University of Illinois in Chicago and Health Care Without Harm Available at: <http://noharm-global.org/articles/news/global/coal-combustion-poses-serious-risks-human-health-review-finds>

²³ IARC, WHO. Outdoor air pollution a leading environmental cause of cancer deaths. Lyon, Geneva: International Agency for Research on Cancer, World Health Organization,; 2013 17 October. Available from: http://www.iarc.fr/en/media-centre/iarcnews/pdf/pr221_E.pdf.

²⁴ Hazelwood Mine Fire Inquiry , Executive Summary, 2014. Available at <http://report.hazelwoodinquiry.vic.gov.au/executive-summary-2/health-wellbeing>

account the short, medium and long term effects of the fire. It is of utmost importance that screening and early detection systems are put in place with community consultation, so as to identify and slow the progression of disease. There is a need to ensure those with illness attributed to or exacerbated by the fire have timely access to treatment and management within the community, and appropriate psychosocial support. Any expansion in healthcare provision must be made in a sustainable manner recognisant of the chronicity of many of the likely health effects of the fire, including the potential of intergenerational trauma.

CAHA regards it inappropriate for those afflicted to be forced to also carry the burden of their resultant health care costs.

It is of note that “emissions can also be transported long distances, even globally, causing health effects to those living far from power plants.”²⁵

The damage to health and wellbeing caused by air pollution from the coal mines and coal fired power plants in the Latrobe Valley is not confined to the local community, but is an issue for the regional and Victorian community. The historic and ongoing health burden from this pollution makes it an issue of national and global significance.

The climatic changes induced by fossil fuel burning are contributing to an increased risk of bushfires across Australia. Given the vast areas of Victoria, NSW and Queensland occupied by highly flammable open cut coal mines, this increasing risk cannot be ignored.

The global agreement to limit warming to less than two degrees above preindustrial temperatures means coal is no longer viable or socially or environmentally acceptable as an energy source, given the catastrophic risks to human health from global warming. Any failure to limit global warming to less than two degrees is a failure to protect human health and wellbeing.

Emissions of CO₂ must be reduced by 6% per year if we are to return to 350 ppm atmospheric CO₂ by about 2100, and this is not compatible with continued burning of coal.²⁶ Coal must be rapidly phased out as a domestic energy source and an export industry for Australia, as it is being in other countries. Rapid transition to abundant affordable carbon-free electricity is the core requirement to produce net-zero-carbon electricity. Australia has the economic and technological capacity to achieve this transition in order to protect human health and wellbeing. Government intervention is required to assist in the development of new industries to replace coal and other fossil fuels, in close consultation with affected communities and alternative, low-carbon, industries. The State has a responsibility to make reparation to the harm inflicted upon these communities, in the form of actively generating alternative employment options that promote health, and restore community wellbeing.

²⁵ *ibid*

²⁶ Hansen JE, Sato M, Hearty P, Ruedy R, Kelly M, Masson-Delmotte V, et al. Ice melt, sea level rise and superstorms: evidence from paleoclimate data, climate modelling, and modern observations that 2 °C global warming is highly dangerous. *Atmospheric Chemistry and Physics* **2015**, 15, 20059–20179.

It is not appropriate for this community to be plunged deeper into disadvantage as a result of their no fault exposure to a foreseeable, and preventable health hazard.

Recommendations

Investing in immediate health needs

1. The Climate and Health Alliance recommends specific investments in primary health care services in the Latrobe Valley to meet increased health-care demands associated with exposure to the coal mine fire and ongoing exposure to pollution from the coal mine and coal fired power station, along with psycho-social and socio-economic health impacts linked to the 2014 mine fire event.

Investing in future health needs

2. Provide ongoing health monitoring, and health and social services, as required, to the Latrobe Valley communities affected by the fires. These must be sufficient in scope to achieve a target in which their health status and SEIFA matches the rest of Victoria.

Investing in a new future for the Valley

3. The Victorian and Federal Governments must invest in an effort to develop a regional economic development plan for the Latrobe Valley to transition away from coal as an energy source for Victoria, and support the development of alternative, low-carbon, industries to provide jobs in the region, in close consultation with affected communities.

APPENDIX A

Climate and Health Alliance Committee of Management

Dr Liz Hanna, CAHA President (Australian College of Nursing)
Ms Fiona Armstrong, CAHA Executive Director
Dr Peter Sainsbury (Public Health Association of Australia)
Dr Brad Farrant (Independent Director)
Dr Bret Hart (Alliance for Future Health)
Dr Elizabeth Haworth (Friends of CAHA)
Alice McGushin and Grace FitzGerald (Australian Medical Students' Association)

CAHA Organisational Members

Australian Association of Social Workers (AASW)
Australian College of Nursing (ACN)
Australian Council of Social Service (ACOSS)
Australian Hospitals and Healthcare Association (AHHA)
Australian Health Promotion Association (AHPA)
Australian Medical Students Association of Australia (AMSA)
Australian Physiotherapy Association (APA)
Australian Institute of Health Innovation (AIHI)
Australian Women's Health Network (AWHN)
Australian Nursing and Midwifery Federation (ANMF)
Australian Psychological Society (APS)
Australian Research Council for Children and Youth (ARACY)
Australian Rural Health Education Network (ARHEN)
CRANA*plus*
Doctors Reform Society (DRS)
Friends of CAHA
Health Consumers' Network (Qld)
Health Issues Centre (HIC)
Kooverup Regional Health Service
Psychology for a Safe Climate
Public Health Association of Australia (PHAA)
Co-Health
Services for Australian Rural and Remote Allied Health (SARRAH)
Women's Health East
Women's Health in the North
World Vision Australia

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Professor Stephan Lewandowsky, School of Psychology, University of Western Australia
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Professor Simon Chapman, Professor of Public Health, University of Sydney
Dr Susie Burke, Senior Psychologist, Public Interest, Environment & Disaster Response, Australian Psychological Society
Professor John Wiseman, Melbourne Sustainable Societies Institute, University of Melbourne

1. Cancer IAFRo. Outdoor air pollution a leading environmental cause of cancer deaths,". World Health Organization, "International Agency for Research on Cancer: Diesel Engine Exhaust Carcinogenic. 2013.