



Climate change and health

KEY POINTS

- Climate change is projected to lead to increased frequency, duration and intensity of heat waves and bushfires, and more extreme precipitation, including more frequent and extreme droughts, storms and floods [1-4].
- Australia remains one of the highest per-capita emitters in the world (on par with the United States). In fact, data on Australia's emissions show that current policies have failed to achieve emissions reductions, with the exception of the period with a carbon price (*Clean Energy Act 2011*, 2012 to 2014) (excluding Land Use Land Use Change and Forestry, Figure 3, P11 <http://www.environment.gov.au/system/files/resources/128ae060-ac07-4874-857e-dced2ca22347/files/australias-emissions-projections-2018.pdf>).

WHY IS THIS AN ISSUE FOR WOMEN?

- The impacts of air pollution from coal power stations, and rising CO₂, as well as the resulting climate impacts, such as heat waves, rising temperature, drought and climate related disasters have specific systemic outcomes for women. These impacts can be both direct and indirect [4] and are often synergistic.
 - Direct impacts include:
 - the effects of rising atmospheric CO₂ and air pollutants, singularly and in combination with heat waves (e.g. heat waves and stroke or kidney disease),
 - the effects of rising temperatures, droughts, (e.g. on mental health and suicide) [4].
 - Indirect effects include:
 - increased water borne diseases (e.g. floods increasing giardia),
 - vector transmission of diseases (dengue fever)
 - water and food scarcity, and particularly affecting indigenous and rural communities [4].
- The physiology of women mean they have increased susceptibility to health impacts of these events [5, 6].
- A high proportion of women are informal carers roles for the sick, children and elderly, resulting in reduced workforce participation and lower incomes [7].

- Rural, impoverished and indigenous populations are particularly susceptible to negative health impacts of climate change, and this is amplified when women and girls have a lower socioeconomic status [8].

IMPACT OF AIR POLLUTION AND PARTICULATES

Coal power stations generate air pollutants and particulate matter (PM_{2.5}), known to impact respiratory disease [9, 10], chronic obstructive pulmonary disease (COPD), childhood asthma and heart disease [11]. Additionally, negative birth outcomes, including intrauterine growth and congenital defects [5, 11] and premature mortality [11] are correlated with air pollution.

Climate change also indirectly increases the frequency and severity of drought and fires, often leading to dust storms, and raised PM levels [11]. These fires and dust storms have resulted in large increases in emergency department admissions for respiratory diseases [11] as well as respiratory deaths in the neonatal period [12]. A suite of health impacts resulting from air pollution have been documented. For brevity, we focus on a few.

- **Rising CO₂**-- Increased CO₂ levels may lead to higher pollen production in allergenic plants, by up to ~200% [11]. This may lead to asthma related to increasing allergenic pollens and fungi [11, 13].
- **Heat waves & rising temperatures** -- Rising temperatures and heat waves have documented impacts on human health, including stroke and heart disease, mental health and suicides, kidney disease, and premature mortality particularly in the elderly and children, as well as exacerbating underlying conditions [4, 14-17]. A study on mortality in response to heat waves reported a 28% increase in deaths in people over age 75 [14]. Finally, it is noteworthy that combined exposure to air pollution and high temperatures can have synergistic detrimental impacts on health [11].
- **Drought**--Droughts have dramatic impacts on rural populations. Psychological distress during drought was reported in a longitudinal study of rural women in Australia, with a reduction in their ability to access support services, which varied by age [18]. A study from Victoria also reported that the mental health impacts of drought, including suicide, depression and mental illness, increase in periods of drought, and that these varied by age, gender and remoteness [19]. Women aged 40-54 were particularly at risk of psychological distress [19].
- **Climate related disasters**--Australia has experienced more frequent and more extreme climate events in recent years, including fires and floods [3]. Women and girls are at higher risk of physical and domestic violence in the period following disasters [5]. Further, they are also at risk of poor economic recovery [20], and the impacts of natural disasters are amplified when women have a lower socioeconomic status [8].

Women are often not part of climate change decision-making bodies, to the detriment of policies and of women [5]. Australian political parties have had both many women resign in 2018-19, and have presented regressive, uncommitted and inadequate climate change policies. There has been a rise of women independents in 2018 and 2019, with platforms on climate change as well as more progressive

views on gender and health. This is arguably in response to the lack of opportunity to influence decision making in the traditional spheres of the two major political parties.

CURRENT GOVERNMENT POLICY

- The government has a number of policies which purport to address climate change, but are polarised, highly political and ineffective. For every dollar spent on climate change the Government is subsidising coal pollution by \$4.36.
- The Emissions Reduction Fund (ERF, now branded “Climate Solutions Fund”), which uses taxpayers’ money to pay polluters to adopt greenhouse gas mitigation policies, does not create incentives for renewable energy sources and imposes little to no cost on emissions or polluters. The 2019 Budget spread the \$2 Billion Climate Solutions Fund over 15 rather than 10 years, representing a cut from \$200m to \$133m over the life of the fund.
- The 2019 Budget earmarked almost \$10bn for drought and flood relief and \$137.4 million over four years on ground protection and restoration of the environment, and only one third of that on preventing climate change, a cause of more frequent and severe extreme weather.
- There are few women in leadership positions in the climate change area. Arguably, this has led to the lack of consideration of women, vulnerable communities, and the environment in the budget and project targeting and design.

NFAW’S POSITION

- The government should adopt a ‘polluter-pays’ principle to encourage reductions in greenhouse gas emissions.
- Advisory and regulatory bodies with responsibilities in the climate change area should put in place a 40 per cent quota for women in leadership positions. [5].
- Climate change disproportionately affects people already in disadvantage, including the indigenous, rural, and lower socio-economic groups. Addressing climate change will reduce the widening economic gap between the advantaged and disadvantaged. For these reasons, studies of the impact of climate change and measures to reduce climate change or its impact should specifically address the needs of these disadvantaged and rural groups.
- Australia has the capacity to ensure electricity its needs can be supplied by renewable energy. Australia should develop the capacity to drastically reduce greenhouse gas emissions and become a global leader in renewable technology and supply, through
 - increased targeted funding for renewable projects across all levels of government, and
 - for relevant technology training in TAFEs and universities.
- Energy policy should reflect the environmental, social and health costs of energy production and use.

- Australia is currently not on track to meet its commitment under the Paris Agreement to keep temperature increases below 1.5 C. A climate policy which will drive down fossil fuel emissions rapidly and deeply is required. This should include emissions pricing involving incentives and penalties, as well as other strategies <<https://ccep.crawford.anu.edu.au/>>.

NFAW is dedicated to promoting and protecting the interests of Australian women, including in intellectual, cultural, social, economic, legal, industrial and domestic spheres, and ensuring that the aims and ideals of the women's movement and its collective wisdom are handed on to new generations of women. NFAW is a feminist organisation, independent of party politics. This policy paper is one of a set of position papers developed by NFAW's Social Policy Committee which summarise current government policy and make key recommendations for change on issues of importance to women of Australia.

REFERENCES

1. Zeppel, M.J.B., J.V. Wilks, and J.D. Lewis, *Impacts of extreme precipitation and seasonal changes in precipitation on plants*. Biogeosciences, 2014. **11**(11): p. 3083-3093.
2. IPCC, *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* R.K.P.a.L.A.M.e. Core Writing Team, Editor. 2014: IPCC, Geneva, Switzerland. p. 151 pp.
3. Katelaris, C.H. and P.J. Beggs, *Climate change: allergens and allergic diseases*. Internal Medicine Journal, 2018. **48**(2): p. 129-134.
4. Watts, N., et al., *The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health*. The Lancet, 2018. **391**(10120): p. 581-630.
5. Sorensen, C., et al., *Climate change and women's health: Impacts and policy directions*. PLOS Medicine, 2018. **15**(7): p. e1002603.
6. Chen, L.H., et al., *The association between fatal coronary heart disease and ambient particulate air pollution: Are females at greater risk?* Environ Health Perspect, 2005. **113**(12): p. 1723-9.
7. Schofield, D., et al., *Economic costs of informal care for people with chronic diseases in the community: Lost income, extra welfare payments, and reduced taxes in Australia in 2015–2030*. Health and Social Care in the Community, 2019. **27**(2): p. 493-501.
8. Neumayer, E. and T. Plümpner, *The Gendered Nature of Natural Disasters: The Impact of Catastrophic Events on the Gender Gap in Life Expectancy, 1981–2002*. Annals of the Association of American Geographers, 2007. **97**(3): p. 551-566.
9. Australia, D.f.t.E., *Clean Air for New South Wales: 2018 Update*, D.f.t.E.S. Committee, Editor. 2019.
10. Broome, R.A., et al., *The health benefits of reducing air pollution in Sydney, Australia*. Environ Res, 2015. **143**(Pt A): p. 19-25.
11. Dean, A. and D. Green, *Climate change, air pollution and human health in Sydney, Australia: A review of the literature*. Environmental Research Letters, 2018. **13**(5): p. 053003.
12. Sram, R.J., et al., *Ambient air pollution and pregnancy outcomes: a review of the literature*. Environ Health Perspect, 2005. **113**(4): p. 375-82.
13. Beggs Paul, J. and J. Bambrick Hilary, *Is the Global Rise of Asthma an Early Impact of Anthropogenic Climate Change?* Environmental Health Perspectives, 2005. **113**(8): p. 915-919.
14. Cheng, J., et al., *Heatwave and elderly mortality: An evaluation of death burden and health costs considering short-term mortality displacement*. Environment International, 2018. **115**: p. 334-342.
15. Bi, P., et al., *The effects of extreme heat on human mortality and morbidity in Australia: implications for public health*. Asia Pac J Public Health, 2011. **23**(2 Suppl): p. 27S-36.
16. Jay, O. and A. Capon, *Use of physiological evidence for heatwave public policy*. The Lancet Planetary Health, 2018. **2**(1): p. e10.

17. Xu, Z., et al., *Assessing heatwave impacts on cause-specific emergency department visits in urban and rural communities of Queensland, Australia*. Environmental Research, 2019. **168**: p. 414-419.
18. Rich, J.L., S.L. Wright, and D. Loxton, *'Patience, hormone replacement therapy and rain!' Women, ageing and drought in Australia: narratives from the mid-age cohort of the Australian Longitudinal Study on Women's Health*. Aust J Rural Health, 2012. **20**(6): p. 324-8.
19. Hanigan, I.C., J. Schirmer, and T. Niyonsenga, *Drought and Distress in Southeastern Australia*. Ecohealth, 2018. **15**(3): p. 642-655.
20. Norris, F.H., et al., *60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981-2001*. Psychiatry, 2002. **65**(3): p. 207-39.
21. Nelson, J.A., *Gender and risk-taking: Economics, evidence, and why the answer matters*. Gender and Risk-Taking: Economics, Evidence, and Why the Answer Matters. 2017. 1-144.