Public Health Association
AUSTRALIA

Safe Climate

Background Paper

This paper provides background information to the PHAA Safe Climate Policy Position Statement, providing evidence and justification for the public health policy position adopted by Public Health Association of Australia and for use by other organisations, including governments and the general public.

This background paper should be read in conjunction with the following policy position statements:

- Global warming, food system and food security
- Health effects of fossil fuels
- Ecosystem respecting human society
- Nuclear industry
- Low emissions and active transport
- Health equity
- Climate refugees

Summary

A healthy well-functioning set of ecosystems and environmental and natural processes are fundamental to a healthy human society and the public's health. Environmental change is occurring, and this is threatening human civilisation and possibly the survival of humanity as a species. The threat from global warming and climate disruption is real, current and urgent. The impacts of global warming are already visible on all continents. Action to assess the need for and guide action to address and ensure a safe climate for humanity and the ecosystem as a whole is urgently required.

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Background and priority

A healthy well-functioning set of ecosystems and environmental and natural processes are fundamental to a healthy human society and the public's health.

1. The Rio Declaration on Environment and Development, adopted by 178 Member States in 1992 at the Earth Summit, enshrined the recognition of the indivisibility of the fate of humankind from that of the Earth, and established sustainable development in international law.[1]
2. The World Health Oorganization (WHO) estimated in 2016, that 23% of global deaths, 22% of Disability Adjusted Life Years (DALYs) and 26% of deaths among children under 5 are due to modifiable environmental factors.[2] 'Modifiable' means being reasonably amenable to management through public health measures. Global patterning of disadvantage exists for the global south, and climate change is increasing global morbidity and mortality. The most vulnerable are those who contributed least.
3. A safe environment is one that provides a healthy and biodiverse habitat to support humans and an ecologically sustainable complex industrial society. It is a core determinant of human health, alongside the socioeconomic and political structures of society.
4. A safe environment comprises: a safe climate, complex biodiversity and functioning ecosystems which provide clear air, clean fresh water, healthy soil and forests, and a diverse and healthy diet. Adverse human impact upon the environment must be minimised.[1]
5. We are now in a new epoch, the Anthropocene,[3] characterised by human activities, driven primarily by increasing consumption by an expanding, and increasingly globalised human population. Humanity's influence is now sufficiently profound to exceed the capacity of planetary resources to regenerate, rendering ecosystems degraded and less able to support a large, thriving human population, as air, waterways, oceans and soils are increasingly polluted.[4]

Current situation

Environmental change is occurring, and this is threatening human civilisation and possibly the survival of humanity as a species.

6. Humanity has now breached the threshold for three planetary boundaries which define the safe planetary operating space for humans to live on earth.[5] One of those breached is the Climate Change threshold, caused by human industrial activities, primarily burning of fossil fuels and land-use change.[6] This we now know without scientific doubt, and it threatens every aspect of human health and wellbeing.[7]

7. The 2019 landmark UN report *Global Environmental Outlook 6 (GEO6*) warns "Human health is in dire straits if urgent actions are not made to protect the environment".[8] Scientists, the Pope, children, the health sector, and many others recognised climate change is now at the level of *emergency*.[8-11]
8. A March 2020 Commission for the Human Future report, *Surviving & Thriving in the 21st Century* enumerates the 12 major existential threats humanity is facing.[12] Global warming and climate disruption is one of these and is address in the PHAA Safe Climate policy position statement. Figure 1 depicts GHG global warming and climate change effects.

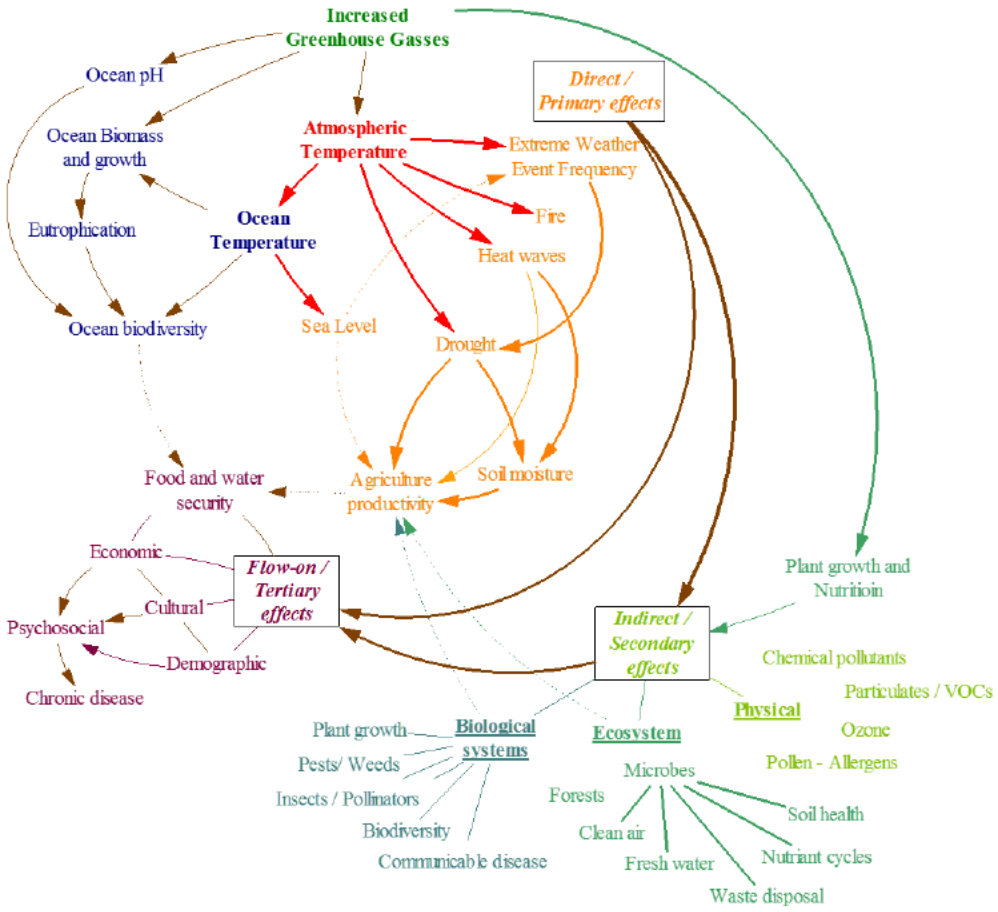

Figure 1: Greenhouse gas global warming and climate change effects (Peter W Tait, 2017, reproduced from the 2017 version of the Safe Climate Policy).

The threat from global warming and climate disruption is real and current – and urgent action has been agreed.

9. The 2015 Paris Agreement aims to limit the increase in global average (land and ocean) temperatures to below 2°C, and ideally under 1.5°C, however, land temperatures, where humans reside, have already warmed 1.7°C.[6, 13] Limiting global warming to below 2°C, and 1.5°C necessitates global greenhouse gas (GHG) emissions reductions of 25% and 55% respectively, and to achieve this by 2030.[14] Yet global GHG

emissions from fossil fuels, industry and land-use change continue to rise, by 1.3% in 2019, which is slightly less than the 2.2% rise in 2018.[15]

10. Australia is not contributing enough to protecting the world's future by safeguarding climate. National emissions for the September quarter 2019 were unchanged relative to the previous quarter, and slightly down (0.3%) on the previous year, largely due to the private uptake of renewable energies and the drought.[16] Emissions arising from the 2019-2020 summer bushfires were extreme.
11. Importantly, national emissions omit Australia's contribution to climate change through exports. Australia is the world's 3rd biggest exporter and 5th biggest miner of fossil fuels by CO_2 potential, placing us behind only Russia and Saudi Arabia, and significantly ahead of Iraq, Venezuela, the OECD average and the EU.[17] Australia's total emissions are 14th globally, and per capita, are the highest in the OECD.[17]
12. The carbon footprint attributed to Australia's health care was estimated at 7% of Australia's national emissions, with hospitals and pharmaceuticals the major contributors.[18] The Global Green and Healthy Hospitals network members are reducing these emissions, but more work is needed.[19]
13. The 2020 joint Lancet-WHO-UNICEF report, "*A future for the world's children*?" ranked Australia 174th out of 180 countries on the Sustainability Index, primarily on lack of securing a safe climate for the world's children.[20]
14. Lack of mitigation efforts and warming feedbacks are contributing to acceleration of global warming. Globally, 2019 was the world's second hottest in the 140 year record, making the past 6 years (since 2014) the hottest. Human heat tolerance and heat-adaptive capacity are not unbounded, and we are rapidly approaching the limits.[21] Around 30% of the world's population is currently exposed to climatic conditions exceeding deadly heat thresholds for at least 20 days a year, which is projected to rise to 74% by 2100 under continued high emissions scenario.[22]

The impacts of global warming are already visible on all continents.

15. Australia is enduring increasing catastrophic climate related events of heat waves, droughts, floods, and the most recent 2019-2020 unprecedented bushfires, which burned more than 18 million hectares (110,000 km^2) across 5 states and burned for 7 months. Thirty-three people lost their lives, most were fighting the fires, and over 3,500 homes were lots, plus many thousands of businesses, shops, studios, farm sheds and equipment.[23] Many areas experienced thick smoke for weeks, with an air quality index exceeding 5,000, more than 25 times the level deemed "hazardous", causing an estimated death toll of 417, and nearly 4,500 hospitalisations.[24] Reportedly, 57% of Australians were directly affected by the fires or smoke. In excess of a billion animals perished, and more starved in the aftermath due to scarred landscapes and contaminated waterways.[25]
16. Preconditions for the fires were record breaking drought for area, intensity and duration, coupled with nationwide record temperatures, making the Forest Fire Danger Index extreme.[26] This is part of an ongoing warming and drying trend consistent with climate changes forecast by modelling in the IPCC Fourth Assessment Report (AR4).[27]

17. Widespread shrinking of the cryosphere in the Arctic and high-mountain areas has led to predominately negative impacts on food security, water resources, water quality, livelihoods, health and well-being, infrastructure, transportation, tourism and recreation, as well as culture of human societies, particularly for Indigenous peoples.[28]
18. The global ocean absorbs more than 90% of the excess heat in the climate system, and the rate of ocean warming has increased by 450% since 1955, reflecting a major acceleration of global warming.[29] Marine heatwaves have doubled in frequency since 1982 and are increasing in intensity and destroying the world's reef systems, which serve as fish nurseries and tourism drawcards.[28] Warmer seas bring increases in tropical cyclone winds and rainfall, and increases in extreme waves, combined with relative sea level rise, exacerbate extreme sea level events, which is highest in tropical regions.[30]
19. By absorbing more CO_2, the ocean has undergone acidification, and the loss of oxygen from the surface to 1000m is threatening fish stocks, and undermining the primary source of protein for millions of coastal populations.[28] Fish stock declines of net 12.1% is projected under the high GHG scenario (RCP8.5) by 2050.[31]
20. Global mean sea level rise (GMSLR) to date is 20cm, and accelerating, now rising at 3.6mm/year due to thermal expansion and a sixfold increased Greenland ice melt, and increasing Antarctic ice sheet melting.[32] GMSLR poses major threats to the livelihoods, food and water supplies of billions of coastal residents, infrastructure, culture and world heritage along the Earth's coasts. Coastal retreat has commenced.[33]
21. Immediate cuts to carbon emissions might limit sea level rise to 30-60cm by 2100, yet without, the ocean is expected to rise between 61-110cm. Rare 100 year coastal damaging events would occur every 3 years on average, and by 2100, $226 billion worth of Australian commercial, industrial, road, rail, and residential assets will be at risk from sea level rise alone.[34]
22. Along with continued heatwave trends, Australia's rainfall variability will increase (longer dry spells and heavier rain events), threatening water supplies and agriculture.[35] The irrigated agricultural output of the Murray-Darling Basin region, which currently accounts for 50% of Australia's irrigated agricultural output is expected to halve by 2050. Wheat yields on the 4,200 family farms in Western Australia are projected to fall by 41-49% in high emissions scenarios by 2090.[36] Australia's financial losses due to climate change from reduced agricultural productivity and labour productivity is projected to exceed $19 billion by 2030, $211 billion by 2050 and $4 trillion by 2100.[36] Ramifications for viability of rural communities, public and domestic spending, health and wellbeing are likely to be significant.
23. This is a global phenomenon. Climate change, through heat, droughts, storms and floods, is reversing recent gains in reducing global hunger and undernutrition. Providing adequate nutrition to the projected population growth (10 billion by 2050), in a warming world requires reduced food wastage and substantial dietary shifts, including a greater than 50% reduction in global consumption of unhealthy foods such as red meat and sugar, and a greater than 100% increase in consumption of

healthy foods, such as nuts, fruits, vegetables and legumes[37] (see also PHAA policy position statement: Climate Disruption, Food System and Food Security).

24. Although the category of "Climate Refugee" does not exist in international law, climate change through loss of livelihoods, land, thermal habitability, food, water and security, is forcing more people from their homelands, and many are likely to seek refuge in Australia.[38]
25. Low carbon technologies offer cheaper and healthier alternatives. Geoengineering techniques cover a broad set of technological interventions, all of which are theoretical or experimental, hence significant doubts exist as to their capacity to safely offset emissions without creating damaging consequences. They may also distract from efforts to reduce emissions.
26. Australia is one of the most vulnerable developed countries to the effects of climate change. Australia has ratified the Paris Agreement and pledged to hold warming to 2°C (and ideally 1.5°). Continued support for fossil fuel industries, and proposed extensions to Australia's fossil fuel exports of liquid natural gas or coal run in direct contradiction to the scientific evidence of what steps are required to secure a safe climate and safe future for Australians around the world.

Action to assess the need for, and to guide action to address climate change, and ensure a safe climate for humanity and the ecosystem as a whole, needs to work within these understandings and principles:

27. Climate change must be recognised as a health emergency. Action to ensure a safe environment and climate is a critical and urgent public health priority.
28. The effects of global warming and novel, far-ranging and complex, and require public health action beyond traditional approaches.
29. Responses to global warming need to focus on both mitigation and adaptation to the inevitable disruptions.
30. Currently available low emissions technologies, which are safer and cheaper than fossil fuels, should be rapidly deployed whilst investing in a suite of novel sustainable technologies.
31. Society-wide transition to low carbon economy is required for the greater-good, and thus it is the government's role to lead, inform, regulate, monitor and enforce, and to motivate behaviour change by individuals and corporations.
32. The cost of production of material goods should encapsulate cradle-to-cradle processing, and carry full costs of environmental remediation. Costs must not be externalised to the environment or borne by the general population as poor air, soil or water quality, in taxes or health costs, but should be incurred by the producers.
33. A broad suite of policy measures is required urgently including reducing energy demand, promoting energy efficiency, pricing carbon, supporting renewable energy and supporting sustainable food production.
34. Australia must ensure its national food and water security, making these basic human rights accessible to all.

Recommended action

35. Develop an integrated and comprehensive suite of policies to promote development of renewable energy, energy efficiency and energy demand reductions to drive the transition from a fossil fuel based economy, and to initiate policies to promote their uptake.
36. Progressively redirect subsidies from fossil fuel energy and fossil fuel dependent transport sectors to low/zero emission transport options across the private, public and commercial fleets, and actively promote active and public transport usage.
37. Funding for research in renewable energy and energy storage modalities should be maintained or increased.
38. Australia's international climate policies should be maintained and extended to ensure that actions undertaken in Australia do not increase the emissions internationally.
39. Disallow construction of any new coal-fired power stations or coal mines.
40. Regulate for emissions limitations on all emissions sources including transport, housing, agriculture, and industries.
41. Support and assist employees to transition from fossil-fuel economy jobs into the green economy, with focus on large communities simultaneously affected, such as mine closures.
42. Support and fund campaigns for decreased consumption of meats and products of animal agriculture.
43. Raise public awareness of the health and climate harms of policies that promote fossil fuel extraction, burning, usage and exports.
44. Protect, preserve, and restore forests, productive agricultural land and native vegetation and promote agricultural stewardship of land that includes carbon biosequestration and ecosystem restoration.
45. Fund social marketing campaigns to explain the action being taken to reduce global warming and climate change risks, and to elicit support for the necessary behavioural changes to achieve this.
46. Promote urban housing and urban landscape design to ensure thermal comfort and reduce energy demand.

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