

Who cares about climate?

The threat of climate change is immediate and grave, and now is the time to act

Who cares about climate? Right now, likely very few, as we battle a global pandemic which, by the end of September 2021, had killed over 4.5 million people.¹

This year sees the 26th International United Nations Climate Change Conference of the Parties (COP26) climate negotiation, intended to create an international framework for action on climate change. With monotonous fanfare, each trumpets success — from the Kyoto Protocol² to the Paris Agreement.³ Yet the flame of fossil fuel combustion has failed to even flicker in response to politicians' puff and the atmospheric concentration of greenhouse gases continues its rise, unhindered.⁴

The result has been an escalating and inexorable net energy gain for our planet. Oceans have been force-fed 90% of this — 326 000 000 000 000 000 Joules — in just over 50 years, the energy equivalent of over 5 billion Hiroshima bombs.⁵ The remaining 10% has driven up surface temperatures — in Australia, by nearly 1.5°C since 1910, with the bulk of this rise happening since 1950,⁶ while Arctic temperatures breached 38°C (> 100°F) in 2020⁷ (the same year in which a new Antarctic temperature record was set⁸) and 48°C in June 2021 in Arctic Verkhojansk.⁹ Temperatures in Canada approached 50°C in June 2021.¹⁰ Between 1979 and 2019, the volume of summer Arctic sea ice fell by three-quarters, or 12 723 km³.¹¹ The Greenland ice sheet alone now loses over 1 billion litres of meltwater every minute.¹² Sea levels have risen by nearly 2 inches (4.5 cm) in only 16 years.¹³

Add energy to an atmosphere, and you get weather. The huge addition of energy which results from our greenhouse gas emissions will thus drive more and more extreme weather events, and at ever greater frequency. The 2021 *MJA-Lancet* Countdown report,¹⁴ summarised in this issue of the *MJA* and available in full at mja.com.au, derives from an ongoing collaboration between *The Lancet* and *The Medical Journal of Australia* and tracks the links between climate change and public health across five domains, with a particular emphasis on Australia. This year's report makes clear that Australia is already experiencing the floods, fires, cyclones and storms that result from atmospheric energy gain¹⁴ — impacts which mirror those experienced the world over.¹⁵ As the authors report, Australians “are increasingly exposed to and vulnerable to excess heat” and this is already “increasing the risk of heat stress ... and decreasing work productivity”. Other extremes of weather “are also on the rise, resulting in “escalating social, economic and health impacts”.¹⁴

So, things are bad. But they are also getting worse, and fast. Positive feedback loops — long postulated as risks — are amplifying energy gain. For example, the addition of greenhouse gases traps yet more energy, while melting ice and snow reflects less solar insolation back into space. The result is that the Earth's energy imbalance, the difference between the amount of solar radiation absorbed by Earth compared with infrared radiation emitted into space, has doubled in only 14 years.¹⁶ Arctic tundra melt is releasing methane, 86 times as powerful a greenhouse gas as carbon dioxide (CO₂) in its first two decades,¹⁷ risking non-linear release of a massive “carbon bomb”.¹⁸ The tundra is ablaze, adding yet more greenhouse gases to our atmosphere.¹⁹ In 2021, the Amazon became a net emitter of CO₂. (see At <https://www.nature.com/articles/s41586-021-03629-6>)

The responses to such warming are unlikely to be linear. The Antarctic has recently begun to warm at three times the global rate, the collateral damage being “everything we value that sustains us”.²⁰ Ice melt is likely to accelerate. Historically, sea level rise of many metres is possible within a matter of a few lifetimes (a few hundred years).^{21,22} Indeed, the atmospheric burden of CO₂ is now comparable to where it was 3.6 million years ago, when sea levels were about 24 metres (78 feet) higher than today.²³

The threat, then, is immediate and grave. Recent data suggest that our high pollution industrial path is leading us towards “a halt in welfare, food, and industrial production over the next decade or so” with associated collapse in agricultural production and in world population following within 20 years of that.²⁴

Meanwhile, we take no meaningful action. Rainforests sequester carbon, but primary rainforest loss increased by 12% between 2019 and 2020.²⁵ Atmospheric CO₂ concentrations rise inexorably.⁵ In 2020, global energy-related CO₂ emissions only fell by 5.8% with the coronavirus disease 2019 (COVID-19) pandemic, and are already higher in 2021 than pre-pandemic rates.²⁶ Far from being consistent with limiting the further rise in

global surface temperatures to “well below 2°C above pre-industrial levels” and “pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” (in line with the Paris Agreement),³ our current trajectory takes us to atmospheric greenhouse gas concentrations equivalent to 1200 ppm CO₂ and a temperature rise of < 5.5°C by the end of this century.²⁷ Indeed, the August 2021 Intergovernmental Panel on Climate Change report²⁸ makes clear that we now need to go far beyond reducing emissions, but also need to draw down (directly remove) CO₂ from our atmosphere, at scale. “Even under large net negative CO₂ emissions”, they report that “climate changes would continue in their current direction for decades to millennia” and it could take “millennia ... for global mean sea level to reverse course”²⁸

It is estimated that a spend of \$2.4 trillion per year (only 2.5% of global domestic product) could decarbonise the world economy in a manner consistent with the Paris goals.²⁹ To date (August 2021), the international Green Climate Fund has received promises of a little over 0.003% of that (\$8 billion) in contributions.³⁰ By way of contrast, by the end of 2020, countries had raised five times as much (\$US11.7 trillion) in response to the COVID-19 pandemic.³¹ In March 2021, the United States administration announced a \$1.9 trillion economic stimulus package.³² International travel had frequently been banned, cities and nations locked down, and new vaccines developed and deployed. Outbreaks of communicable disease are, of course, to some degree manageable by public health measures but the same is not true of climate change: the scale of impending disaster will not be amenable to intervention with steroids or to immunisation.

The immediate threat which climate change poses to the world’s ecosystems, atop which humanity sits, is clear. The impacts of climate change on human health and survival are now well documented — most recently in the 2021 *MJA–Lancet* Countdown report¹⁴ — but we must do more than merely chronicle our own destruction. We have diagnosed the disease and its cause. We know the cure. Now is the time to prescribe and deliver it. We, the people, must lead where politicians and business have so badly failed to do so. At the vanguard should be the world’s 59 million health care workers. The COVID-19 pandemic must be addressed but we cannot and must not be distracted from immediate action on climate change.

Competing interests: Hugh Montgomery chairs the *Lancet* Countdown on Health and Climate Change, which is funded by the Wellcome Trust.

Provenance: Commissioned; externally peer reviewed.

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doi: 10.5694/mja21.00778

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