Editorials

Climate change: health risks mount while Nero fiddles

The IPCC's latest assessment highlights risks, ethical challenges and planning needs

Anthony J McMichael
MB BS, PhD, FTSE
Emeritus Professor

National Centre for Epidemiology and Population Health, Australian National University, Canberra, ACT.

tony.mcmichael@anu.edu.au

doi: 10.5694/mja14.00307

The climate has long been considered beyond human control, other than through sacrifice and prayer. In modern times, there has been little interest in studying climatic influences on human health, disease and mortality. We can reduce cigarette smoking and make workplaces safer, but we cannot change the climate. Or so we thought. Now, with the advent of human-driven climate change, we need to know how climatic conditions affect health.[1]

The section of the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report on "impacts, adaptation and vulnerability" was released on 31 March this year. The chapter on human health, as for other sector-specific chapters, comprises a comprehensive, externally peer-reviewed assessment of all relevant scientific literature by an expert international author team.[2]

Many previously anticipated health impacts are now materialising, making adaptation increasingly necessary in light of the dismal 20-year delay in effective international abatement ("mitigation") action. This delay sits comfortably with the current Australian Government's preoccupation with making the world safe — not for the wellbeing of future generations, but for economic growth today.[3]

Most of the biosphere's biophysical and ecological systems that help sustain human population health are climate-sensitive: plant growth; the water cycle; constraints on infectious disease spread; and forest, reef and mangrove buffers. Hence, climate-related impacts on health signify much more than mere collateral damage; they signal that nature's life-supporting system is being disrupted sufficiently to harm human populations, their cultural insulation notwithstanding.

The directly harmful paths are familiar: deaths and hospitalisations from heatwaves; dehydration and injuries in overheated workplaces; traumatic impacts of severe floods, storms and fires; and exacerbation of urban air pollution. But those are the visible tip of a much larger (ahem) iceberg. The most serious risks to health arise from disrupting nature's ecological and biophysical systems. Further, the associated economic and social consequences will often lead to job loss, impoverishment, migration and conflict,[4,5] all of which are potential causes of illness, disease, depression and premature death.

The IPCC human health chapter concludes that climate change over the next few decades will mainly act by exacerbating existing health problems.[2] The greatest impacts will occur — indeed, are occurring — in populations already burdened by climate-sensitive health problems such as child diarrhoea, nutritional stunting and urban heat extremes. Human-driven warming has increased heat-related death and illness in many locations, while changes in temperature and rainfall have altered the distribution of some waterborne infectious diseases and reduced food yields in some food-insecure populations. These adverse health impacts will widen the existing health gap between regions and between rich and poor.[6] Climate change, unabated, will erode development gains — an issue now of explicit concern to the World Bank and, in our own region, the Asian Development Bank.[7,8]

More positively, the IPCC chapter stresses the immediate "co-benefits" to local health from undertaking actions to reduce greenhouse gas emissions.[2] These include gains in physical health from cleaner urban–industrial air, better public transport and lesser car reliance; reduced exposure to temperature extremes in energy-efficient housing; and healthier diets due to transformative changes in producing and processing food.

Meanwhile, Australia's Bureau of Meteorology and CSIRO (Commonwealth Scientific and Industrial Research Organisation) project that temperatures will continue rising, with more extremely hot days and fewer extremely cold days; that average rainfall in southern Australia will decrease, and heavy rainfall will increase over much of the country; and that sea-level rise and ocean acidification will continue.[9]

Yet public discussion of human-driven climate change in Australia remains marred by adversarial dispute, ideological rigidity, an anti-science ethos (why no federal Minister for Science?) and the orchestrated manipulation of doubt. Many vested interests feel threatened. There is a deep-seated problem in Australia, one of just two developed countries (along with Canada) where climate scepticism is strongly entrenched and the national government is openly ambivalent about human-driven climate change. Are young, expansionist "settler" cultures such as the United States, Canada and Australia prone to complacent disdain for tackling big, complex and inconvenient issues? Our Prime Minister repeats endlessly that Australia is "a land of droughts and flooding rains", a simplistic ploy that helps to sustain a land of doubts and fuddled brains.

There are many challenges for the health sector, including reducing the sector's carbon footprint, attuning facilities and training to likely climate-related needs (as the defence sector is doing[5]), enhancing surveillance systems, facilitating epidemiological research and monitoring, and joining intersectoral decision making about adaptation strategies.[1] Doctors

Emissions Reduction Fund White Paper

On 24 April 2014, the Australian Government released a White Paper on the Emissions Reduction Fund (ERF), the centrepiece of its Direct Action Plan (http://www.environment.gov.au/resource/emissions-reduction-fund-white-paper). The White Paper offers some sugar-coating for an unlikely home-made pill — a bit more money, a "safeguard" mechanism to stop emissions escalating, and a stronger farming and land care initiative.

Instead of citizens paying a carbon surcharge on emissions-related goods and services, such as petrol and electricity, they will, as taxpayers, finance the ERF. That money will be disbursed to greenhouse-polluting industries in proportion to their reduction of emissions: the better-behaved polluters will be paid. Yet expert international opinion from economists favours a simple tax on the carbon emissions content of things bought in the marketplace as the most efficient and fair strategy — and an effective way to achieve public understanding that our society, collectively, must mend its ways. Who in consumer-land will learn from the Direct Action Plan about the fundamental need for such change?

Further, the modest ERF budget will struggle to achieve substantive reductions in Australia's emissions. Much expert assessment is that up to five times more money would be needed to achieve our commitment to a 5% emissions reduction by 2020, relative to 2000.

Meanwhile, the United States, China, the European Union and others are already implementing carbon pricing and renewable energy incentives, and planning steep emission controls after 2020. But, says the Australian Government, help is nearby: a "Green Army" of 15 000 young Aussies will sequester carbon dioxide by planting trees and restoring soils — led perhaps by a man in a yellow hard hat. Restoring soil and vegetation health is important but, overall, the Direct Action Plan will do little to stabilise the global climate and lower future worldwide risks to human health. ◆

are citizens and their professional organisations are part of society's institutional fabric; both should engage with the wider community in seeking effective national action on climate change. Doctors for the Environment Australia (http://dea.org.au) is providing strong leadership on this front, and harnessing the energy and concerns of many young doctors.

The human health dimension of climate change has long been largely overlooked; concerns have focused on risks to tangibles "out there" — coastlines, property damage, electricity costs, iconic species and ski slopes. Those are all important, but they fall far short of recognising that our collective climate-changing actions jeopardise social stability and the healthy life of *Homo sapiens* and of the many species with which we share our world. The health professions must engage.[1]

Addendum: See the Box for an overview of the Australian Government's recently released White Paper on the Emissions Reduction Fund.

Competing interests: I am a board member of the Climate Institute, Australia's leading non-government organisation on climate change and policy issues.

Provenance: Not commissioned; externally peer reviewed.

1 McMichael AJ. Globalization, climate change, and human health. *N Engl J Med* 2013; 368: 1335-1343. doi: 10.1056/NEJMra1109341.
2 Smith KR, Woodward A, Campbell-Lendrum D, et al. Chapter 11. Human health: impacts, adaptation and co-benefits. In: Field CB, Barros V, Dokken DJ, et al, editors. Climate change 2014: impacts, adaptation, and vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Volume I: global and sectoral aspects. Cambridge and New York: Cambridge University Press, 2014. http://ipcc-wg2.gov/AR5/images/uploads/WGIIAR5-Chap11_FGDall.pdf (accessed Apr 2014).
3 Abbott T. This year's G20: getting the fundamentals right. Address to the World Economic Forum, Davos, Switzerland. 23 Jan 2014. http://www.pm.gov.au/media/2014-01-23/address-world-economic-forum-davos-switzerland-0 (accessed Apr 2014).
4 Morisetti N. Climate change and resource security. *BMJ* 2012; 344: e1352. doi: 10.1136/bmj.e1352.
5 Press A, Bergin A, Garnsey E. Heavy weather: climate and the Australian Defence Force. Special report issue 49. Canberra: Australian Strategic Policy Institute, 2013. https://www.aspi.org.au/publications/special-report-issue-49-heavy-weather-climate-and-the-australian-defence-force (accessed Apr 2014).
6 Friel S, Marmot M, McMichael AJ, et al. Global health equity and climate stabilisation: a common agenda. *Lancet* 2008; 372: 1677-1683. doi: 10.1016/S0140-6736(08)61692-X.
7 World Bank. Turn down the heat: why a 4°C warmer world must be avoided. Washington, DC: World Bank, 2012. https://openknowledge.worldbank.org/handle/10986/11860 (accessed Apr 2014).
8 Asian Development Bank. Addressing climate change and migration in Asia and the Pacific. Mandaluyong City, Philippines: Asian Development Bank, 2012. http://www.adb.org/publications/addressing-climate-change-and-migration-asia-and-pacific (accessed Apr 2014).
9 Bureau of Meteorology and Commonwealth Scientific and Industrial Research Organisation. State of the climate 2014. BOM and CSIRO, 2014: 3. http://www.bom.gov.au/climate/state-of-the-climate/2014 (accessed Apr 2014). ❑