The Heat is On

Climate change poses the single greatest threat to the security and wellbeing of Australians

AUSTRALIAN PEACE AND SECURITY FORUM

Working towards comprehensive national peace and security

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Peace and Security Quarterly Report No. 2

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Our fossil fuel addiction is a Frankenstein's monster, sparing nothing and no one.

All around us, we see clear signs that the monster has become master.

UN Secretary General, António Guterres, World Economic Forum, 22 Jan 2025.

Australian Peace and Security Forum

Working towards comprehensive national peace and security

The APSF is a not-for-profit Think Tank bringing together a broad network of informed researchers, professionals and practitioners working to strengthen peace and security for all Australians by providing information, analysis and opportunities for dialogue with Government and civil society.

For more information about APSF, please visit our website:
austpeaceandsecurityforum.org.au
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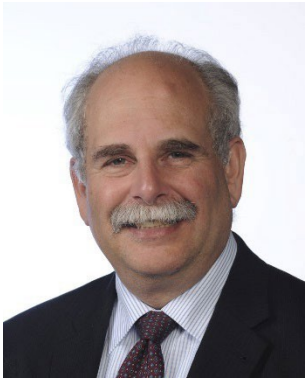
Contents

Contributors

Arnagretta Hunter is a physician and cardiologist with interests across medicine, climate change and our human future. She completed a BA(Hons) in international relations before embarking on Medicine at the University of Sydney. Passionate about the social determinants of health, she has a broad interest in public policy from local issues to global challenges. She is the Human Futures Fellow at NCEPH (National Centre for Epidemiology and Public Health) at ANU, a member of ANU Institute for Climate, Energy and Disaster Solutions, and is Chair of the board of Global Shield Australia. Her work is diverse and centres around human health and wellbeing, the relationship between health and the environment and the challenge of climate change.

Adrian Morrice has been a practitioner and researcher in political transitions, conflict prevention and peacebuilding for several decades. Deploying to UN Force Headquarters, Somalia in 1993 as an Australian Navy staff officer, he later joined the UN in five more peacekeeping operations and political missions (Liberia, Western Sahara, Timor Leste and Sierra Leone). He supported transition elections in Nigeria, Nepal, Mexico, Pakistan, Mongolia and Thailand. Completing a Master of Science from the London School of Economics in 2003, he later joined the UN in New York, working in the Departments of Peacekeeping and Political Affairs where he supported new research and policies on peacebuilding in the immediate aftermath of conflict, security sector reform and reform to UN Special Political Missions. In Myanmar, he was the UN adviser to the Joint Ceasefire Monitoring Committee, and, before returning to Australia in 2023, the UN peace adviser in Nepal for 3 years. Adrian is a Board member of APSF.

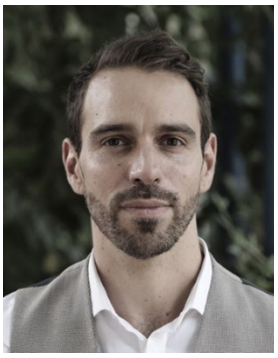


Albert Palazzo is an Adjunct Professor at University of New South Wales –Canberra in the School of Humanities and Social Sciences. He was formerly the long-serving Director of War Studies for the Australian Army. He has written more than twenty books and monographs on the art of war, including The Australian Army: A History of its Organisation, 1901–2001, The Australian Army and the War in Iraq, The Battle of Crete, and From Moltke to Bin Laden: The Relevance of Doctrine in the Contemporary Military Environment and Climate Change and National Security: The Implications for the Military. He is currently writing a book that examines what is wrong with Australia's defence policy and explains how to fix it.

Anne Poelina is a Nyikina Warawa Indigenous Australian, Co-Vice President of ASPF, a poet, storyteller film maker. She is Professor, Chair & Senior Research Fellow Indigenous Knowledges Nulungu Research Institute University of Notre Dame. In 2024 she was Awarded the Geoethics Medal 2024 by the International Association for Promoting Geoethics (IAPG) and the Bessie Rischbieth Conservation Award, from the Conservation Council Western Australia for demonstrating an outstanding commitment to the Western Australian environment.

Ian Lowe, is a former Director of the Commission for the Future, former head of School of Science at Griffith University, President of the Australian Conservation Foundation from 2004 to 2014 and chaired the advisory council that produced the first independent national report on the state of the environment. He is an author of many books and wrote a column for New Scientist for 13 years. He is Emeritus Professor, Science, Technology and Society, at Griffith University, QLD. Ian is Co-President of APSF.

Dr Sven Teske is a Professor and Research Director at the Institute for Sustainable Futures, University of Technology Sydney/Australia with a research focus on energy decarbonisation pathways for countries, regions, urban environments, and specific industry sectors towards Net-Zero by 2050. He holds a PhD in economics from the University of Flensburg in Germany. Dr. Teske research covers technical input for National Determined Contribution Reports (NDC) for developing countries and Net-Zero 1.5˚C Paris aligned decarbonization pathways, with a focus on renewable energy-based energy concepts required to achieve the Paris Climate Agreement for countries, regions, urban environments, megacities and microgrids for islands.



Dr. Siad Darwish is an environmental anthropologist who leverages systems thinking and participatory design to create inclusive, transformative solutions for climate action, specifically in fragile settings and complex crises. Siad has worked with a wide range of multilateral agencies, international organizations, development banks, governments, and private sector clients. As an applied academic, Siad works as a Research Associate at the University of Melbourne's Initiative for Peacebuilding, and he has taught at the University of Wollongong and contributed to research projects at Deakin University in Australia.

Siad holds a PhD in Critical Interventions in Theory and Ethnography from Rutgers University, a MA in the Anthropology of Development from the University of Sussex, and a combined honours BSc in biology and anthropology from the University of Surrey.

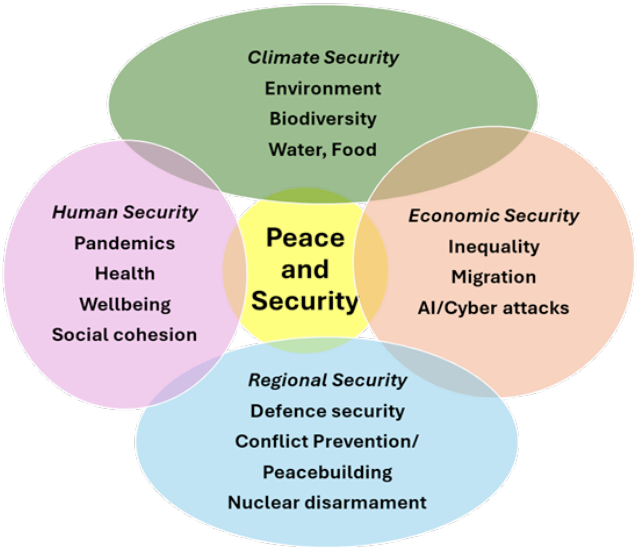
Introduction

The heat is on. Last year was the hottest year on record. The warmer atmosphere and warmer oceans have contributed to record breaking rain and floods in western Queensland and up and down the east coast of Australia while parts of western Victoria and South Australia suffer prolonged drought. Extreme weather is leaving thousands without homes and livelihoods.

In 2018, Australia joined with Pacific Island leaders to sign the Boe Declaration on Regional Security which begins by reaffirming that 'climate change remains the single greatest threat to the livelihoods, security and wellbeing of the peoples of the Pacific.'

Four years later, the Pacific Island Forum (PIF) leaders adopted the 2050 Strategy for the Blue Pacific Continent. The '2050 Strategy 'recognises an expanded concept of security that includes human security, economic security, humanitarian assistance, environmental security, cyber security and transnational crime, and regional cooperation to build resilience to disasters and climate change.' Our Pacific neighbours see the need for an integrated approach to security for all.

The **Australian Peace and Security Forum** (APSF) agrees with Pacific leaders and recognises that the security and future wellbeing of Australians and our environment depends on an integrated and comprehensive approach to security. People cannot enjoy security and wellbeing in the absence of peace and climate stability. APSF is an incorporated not-for-profit Think Tank, working to increase understanding of the interlinked nature of the key security challenges outlined in the diagram below.



To encourage public discussion on the key issues that underlie peace and security for all Australians, APSF is publishing quarterly reports, each of which will focus on one of four themes: regional and defence security, climate and environmental security, human security and economic security. The first report, ***Give Peace a Chance*** was published in April 2025 and is available for free download at www.austpeaceandsecurityforum.org.au

The Heat is On is being published at a critical point for a newly elected Federal Government with a resounding majority. Some commentators suggest there are two options for the Government: bold steps to address the challenges we face or a self-satisfied hubris that leaves Australians disappointed and angry at lost opportunities. The climate crisis demands the first.

According to an analysis of the recent Federal election by the Climate Council, Australians made a resounding choice: keep powering on with renewables and storage. Three-quarters of Millennials and Generation Z voters named climate change as a top tier voting issue for the 2025 election. This climate voting bloc is now the largest – and still growing – group of Australian voters. For younger Australians, the heat is firmly on the Government to take stronger action on climate change urgently.

In the first chapter, two experienced peace practitioners **Adrian Morrice** and **D**r **Siad Darwish** review the rapid change over the past decade in **international thinking on climate change and security**. The formation in 2018 by Nauru and Germany of a 'Group of Friends on Climate and Security' kicked off positive informal diplomacy and consensus-building around the issue and today more than 70 countries, including Australia are active in the Group. Australia's National Defence Strategy of 2024 acknowledges climate change as a national security issue. However, the detailed climate security assessment undertaken by Australia's Office of National Intelligence is yet to be released by the Government. The authors call for the release of the report as an important step towards expanding public understanding and dialogue within Australia.

The urgency of the challenge ahead is laid out by **Dr Sven Teske** in chapter 2 where he states that, **Earth is tracking towards around 2.7°C average warming by 2100.** That level of warming would represent "unprecedented peril" for life on this planet. But progress is being made. The EU says its emissions fell by 8.3% in 2023 compared to 2022. In the US, emissions are still below pre-pandemic levels and remain about 20% below 2005 levels, but the Trump administration has given the green light for more fossil fuel mining. The good news is the world's largest emitter, China, is cutting its emissions. Teske concludes that it is not too late to save the climate. The technologies we need are finally cheap enough. The sooner we stop climate change from worsening, the more disasters, famine and death we avert.

The impacts and **costs of climate disruption** are being felt daily by Australians, although the link may not be immediately obvious. Emeritus **Professor Ian Lowe** AO explores these impacts in Chapter 3. He points out that in 2004, the world's second largest reinsurer (SwissRe) warned that the costs of natural disasters aggravated by global warming threatened to spiral out of control. In Australia, the costs of property damage from extreme events reached $7 billion in 2022 and since then there have been record breaking floods in several States. More than one third of properties are now uninsured and the rising cost of insurance is a key factor in the inflation that affects all of us. Without more rigorous efforts to reduce carbon emissions, Professor Lowe warns that we face the prospect of much greater cost impacts within our human lifetime.

The **health of Australians** is also being undermined by climate change. In chapter 4, cardiologist **Dr Arnagretta Hunter** points out that climate change produces a diverse range of health challenges and impacts including heart related mortality, failing water security that results in undrinkable water, disruption to health services and shifting disease patters. A key problem, she suggests is how health systems view the environment. The three layers of the

biology of a disease, the social determinants of health and the environmental influences are not separate but deeply connected.

Addressing climate impacts present an opportunity to improve healthcare delivery and reduce its environmental impact according to Dr Hunter. She goes on to describe a primary health care organisation in northern NSW-southern Queensland (HealthWise) that has taken a successful community centred approach. It has shown how such an approach can increase community wellbeing as well as community capacity to respond to extreme weather events.

Indigenous people make up 6 percent of the world's population and remain stewards and custodians who manage one quarter of the world's land surface**.** In chapter 5, **Dr Anne Poelina** describes how Indigenous people are on the frontline of the climate crisis. Dr Poelina describes how Indigenous peoples have descended from original occupants of place-based estates, and possess knowledge and stories passed down across the generations, *reading and feeling* Country.

If Indigenous Australians are to effectively contribute from their knowledge and generations of experience, the international commitments made by Australia, especially in regard to human rights and Indigenous rights need to be applied at the Federal and State/Territory level. In her country in the Kimberly region of Western Australia, the Martuwarra people of the river must not be sacrificed for a development-at-all-cost-approach resulting in genocide and ecocide for Yi- Martuwarra People. Dr Poelina makes the case for regenerative industries - 'forever industries'- that are best practice for climate change adaptation and natural resource management.

The worsening impacts of climate change may make Australia less safe due to an increase in foreign threats, beyond the traditional military threats from a foreign power, according to **Dr Albert Palazzo**. Overwhelmed by **relentless climate shocks**, states in our region could descend into chaos, conflict and become ungovernable, he argues. As we have seen in other countries, climate change creates stressors, such as food and water shortages, habitat loss, land inundation and forced migration. The inability of governments to provide essential goods and services leads to a breakdown in law and order and results in ungoverned spaces.

Climate impacts in our region, pose a challenge to the Australian government as to how it will manage the security risks created by ungoverned spaces. Such ungoverned spaces are also likely to generate humanitarian crises and lead to increased movement of people. Migration numbers in the millions will present significant moral issues for Australia.

Acknowledgements

The Australian Peace and Security Forum aims to publish shortly the third in the 'Peace and Security Quarterly Report' series which will focus on human security. We aim to release it in September. To join or learn more about our webinars and other activities, visit our website here.

Visit the APSF website to download the first Quarterly Report: '*Give Peace a Chance'*

Special thanks to our writers and thanks to Unsplash, the United Nations, Martuwarra Fitzroy River Council, the Royal Australian Navy, Climate Council and the SES for the use of photos. And thanks to Glenn Frey for the title!

Russell Rollason (Editor)

The understanding between climate disruption and its impact on **insecurity** is improving at a rapid pace. The climate science is clear that we're at a crossroads where we can and have to change direction to reshape a better future for international peace and security. As greenhouse gas emissions continue to increase (already 1.6 degrees higher on land than pre-industrial levels), our climate security outcomes become more dire. Yet serious and persistent action – ***a quantum leap of change*** that climate scientists have called for – can fend-off the most cataclysmic and long-lasting impacts.[i]

This article highlights international efforts to confront climate security, and its relevance to the Indo-Pacific region. It argues there is an urgent opportunity for Australia to place climate security more centrally in a comprehensive national peace and security strategy, and to demonstrate it in our actions in partnership with our neighbours. Our mindset needs to shift, to imagine new ways of adapting and responding to slow and sudden-onset changes and disasters that impact how we cohabit on earth.

Evolving and urgent international efforts to confront climate security

Global work on climate security, **a theme between *climate change* and *peace and security***, has now accelerated, after a slow start among practitioners, organisations, governments and defence forces. The concept of insecurity emerging from climate change arose from at least the late 1980s when climate scientists[ii] and conflict analysts identified and projected patterns of climate-driven natural resource depletion as core drivers of armed conflict. It took nearly another decade for this evidence to gain wider attention, for example, in a speech by the **US Secretary of State in 1997** that led to its consideration in the 1997 US National Security Strategy.[iii] The **Darfur war** then became known as 'the first climate war' when farmers and herders were forced into competition by 2003 after climate change had driven deforestation and drought.[iv]

Consensus emerged nearly 20 years ago that climate change does not *cause* insecurity and conflict directly; rather, it is a '**risk multiplier**', it exacerbates existing or accelerates new drivers of conflict.[v] Retired and respected senior military officers became some of the most outspoken advocates of these patterns at local and regional levels. They partnered with climate

scientists arguing the seriousness of nearing 1.5 degrees global warming where modelling began to show an exponential increase in global security threats.[vi] But overall, acceptance and up-take were limited and continued to be outpaced by climate disruption.

While some climate politics (such as negotiations on loss and damage finance) have set-back climate security advocacy, in the last two decades there has been diplomatic progress and modest action, as evidenced in this timeline. The UK used its 2007 Presidency of the **UN Security Council** to host the first of what are now regular thematic debates. Even as sceptics remain, UN Member States have come a long way since the UK's Permanent Representative directly addressed doubts as to 'whether this is the right place to be having this discussion.'[vii] This was followed by the UN Secretary General's first report on the topic in 2009 and another open debate in 2011 that produced a Presidential Statement.[viii]

Positive informal diplomacy and consensus-building continues by the Nauru and German-led **Group of Friends on Climate and Security**, created in 2018, and now with 70 Member States including Australia. Their joint statements highlight a more serious appreciation of the global effort required.[ix] The urgency and global impact of climate security threats has allowed the topic to swim against the tide of re-asserted national sovereignty and geopolitical rivalry.[x] The Security Council now regularly mandates peace operations to mitigate climate security risks, as evidenced in another debate in 2023.[xi] **Regional organisations** have also progressed the issue, even involving countries where non-intervention remains a strong imperative.[xii]

In the international domain and informed by increasing climate-induced disasters at

home, Australia is sharing its own challenges and its willingness to support others. Numerous speeches by Foreign Minister Penny Wong have noted the need for ambitious actions, highlighting that the climate is 'changing faster than our combined efforts to stop it.' Elected to the **UN Peacebuilding Commission** (PBC), there are opportunities for Australia to support national prevention strategies decided in the 2024 Pact for the Future (Action 18) and to strengthen climate security actions in the context of the 2025 Peacebuilding Architecture Review.[xiii] Australia's campaign for a non-permanent 2029-2030 two-year seat on the UN Security Council will be helped by demonstrating meaningful Australian Government partnership with civil society and the business sector on climate security mitigation. PBC members appreciate home-grown stories. Australia could share its research and actions to mitigate clear increases in **gender-based violence** and other trauma during and after Australian disasters.

Climate, peace and security in Australia and the Indo-Pacific

Closer to home, climate security is better understood as a driver of instability across the **Indo-Pacific** - intensifying disasters, deepening inequality, and fuelling displacement. For Australia, these risks are both domestic and geopolitical, undermining national resilience while eroding the stability of nearby states and

exacerbating geopolitical competition. Albert Palazzo's paper in this Quarterly Report shows clearly how **ungoverned spaces will flourish** in our region and the consequent detrimental impact to Australia's security. A survey of 130+ non-government foreign affairs experts in May 2025 revealed that: climate driven disasters are the most urgent of all issues to prepare for; avoiding climate shocks from compounding crises was the second most desired priority in the national interest, and; climate must now be treated as a systemic (not sectoral) issue.[xiv]

While climate security is not yet central to Australian thinking on peace and security,[xv] it is gaining ground. There is some urgency coming from intensifying sudden-onset climate events such as bushfires, floods, heatwaves and cyclones that disrupt daily life and place enormous strain on critical infrastructure and institutions. The **Australian Defence Force** (ADF) has been increasingly diverted to disaster relief operations at home, undermining its core strategic readiness. After 'passing and piecemeal consideration' in the past,[xvi] climate security is starting to be more directly addressed in defence strategy, helped by a 2018 Senate Inquiry on the 'Implications of climate change for Australia's national security.' The 2023 Defence Strategic Review acknowledged climate change as a "threat multiplier" that interacts with existing vulnerabilities to drive conflict, instability, and humanitarian crises,[xvii] similarly the most recent 2024 Australian National Defence Strategy (NDS),[xviii] but climate security is yet to be a determinant of ADF force structure or central to operational planning.[xix]

The **Australian Security Leaders Climate Group** (ASLCG) argues that 'the fundamental failing running through this work is the refusal to accept the size and immediacy of climate risk'.[xx] Australia has taken positive steps towards climate security and diplomacy under the Albanese government and in Parliament – such as re-joining the Green Climate Fund, conducting two Parliamentary inquiries on Australia's Pacific relationships in 2021 and 2022[xxi], making 'an urgent climate risk assessment of the implications of climate change for national security' as part of its 2022 Nationally Determined Contributions[xxii], and supporting the Pacific Resilience Facility. However, it is yet to embed climate security meaningfully into its core security frameworks. The government is preventing an urgent conversation on the scale of what we're confronting by not yet releasing the Office of National Intelligence (ONI) 2023 climate risk assessment, despite earlier promises of transparency, and in contrast to international best practice.[xxiii]

Amongst our **Pacific Islands** neighbours, climate security challenges are becoming increasingly visible, their leaders having identified climate change as the single greatest threat to their nations' security, sovereignty, and cultural survival. Through the 2018 **Boe Declaration** on Regional Security, Pacific Island Forum (PIF) members – including Australia – committed to address climate change alongside traditional security concerns. (see next page) The agreement recognised an 'expanded concept of security ... prioritising environmental security ... in building resilience to disasters and climate change.'[xxiv] Sea-level rise and intensifying storms continue to erode coastlines, displace communities, undermine social cohesion and threaten the habitability of entire nations like Tuvalu and Kiribati. Given the importance of climate security to our neighbours, this would seem an important and non-threatening opportunity to further develop defence and other cooperation in the humanitarian assistance and disaster relief (HADR) sector.

CHALLENGES LIVELIHOODS AND THE BLUE ECONOMY

Impacts on agriculture, fisheries and tourism, cause shrinking of households Income, government revenues and may stimulate unsustainable development alternatives, straining social bonds.

THREATENS LAND AVAILABILITY & USABILITY

Climate Impacts undermine land, food and water security and can Increase competition over scarce resources, causing erosion of social norms and disenfranchisement with government.

EXACERBATES DISASTERS RISKS & ERODES RESILIENCE

More frequent & severe disasters cause loss of life, assets, livelihoods, displacement & undermines government and communities coping capacity.

AFFECTS MOBILITY TRENDS& CAN EXACERBATE RISKS

Relocation, displacement and unsustainable mobility may Increase urbanisation and overpopulation, expose vulnerable categories to disaster risks, determine cultural loss and cause tensions, dislocation, and trauma.

URGES SECURING SOVEREIGNTY AND COULD UNDERMINE REGIONAL STABILITY

Land Loss and affected habitability pose key questions around future governance and regional cooperation.

PACIFIC ISLANDS FORUM

adelphi 6)

PEACEBUILDING FUND

IOM UN MIGRATION

In **South Asia**, India has emerged as a key voice advocating for climate justice and compensation for loss and damage, which could strengthen resilience and thereby climate security in the region. India's leadership in advancing global conversations on reparations and resilience provides an entry point for regional collaboration.[xxv] **Southeast Asia** remains the most vulnerable part of the world to climate extremes, including flooding, heatwaves, and agricultural disruption.[xxvi] However, the Association of South East Asian Nations (ASEAN) principle of non-interference has prevented positive engagement on climate security, limiting cooperation to disaster response mechanisms rather than deeper risk mitigation or peacebuilding efforts. Australia could make a positive contribution to ASEAN in assisting them to integrate domestic climate security considerations with regional climate diplomacy, climate modelling and resilience-building.[xxvii]

> *through the rest of this century we will confront a threat 'that will generate a conflict with which we are wholly unfamiliar. We cannot fight it, but we will be forced to struggle against it*

To address these gaps, and in addition to recommendations to enhance international engagement above, Australia could take **three decisive actions over the next 12 months** that reflect both the urgency of the threat and emerging best practices internationally.[xxviii]

First, in the context of moving to a more comprehensive national peace and security strategy, there is a need to **expand public understanding and dialogue within Australia**. The Australian Government could release the ONI climate risk report. Making this available would build trust, provide a roadmap for whole-of-government action and align Australia with other democratic allies that publish national climate security documents. It will be important for Australia to provide a national climate risk register, clearly defined roles for relevant agencies, and a publicly accountable implementation plan. In line with recommendations from the ASLCG,[xxix] the government should commit to annual climate threat briefings to Parliament, as well as accessible summaries to inform the public.

Second, a **National Climate and Security Taskforce** should be established, with a senior Climate Security Advisor reporting directly to the National Security Committee of Cabinet. Since disaster prevention and initial emergency response is the responsibility of States and Territories, their representation on the taskforce is essential. This taskforce would coordinate planning and decision-making across relevant government departments and agencies, ensuring effective engagement with civil society to ensure a cohesive approach. Lessons could be drawn from Germany's Interministerial Working Group on Climate and Security and the UK's cross-departmental Climate Security Unit, both of which have strengthened policy coherence and improved risk preparedness across government.

Third, Australia should **invest in regional partnerships** that integrate climate adaptation with security cooperation. This means fully capitalising the Pacific Resilience Facility to ensure timely, Pacific-led adaptation funding. It also means engaging with India and other Indo-Pacific partners on joint initiatives that address loss and damage, climate-induced

displacement, and community resilience. Australia has an opportunity to lead and advocate for climate security more urgently in UN and regional representations, to increase **early warning and conflict prevention funding** more commensurate with the threats. This should also include greater international collaboration in climate-induced HADR efforts. Stronger government negotiation capacity is needed in climate diplomacy and in preventive diplomacy for the more insecure world that is emerging. In parallel, Australia should expand **Indigenous-led climate programming**, both at home and abroad. Incorporating Indigenous ecological knowledge into climate risk mitigation, fire management, and land restoration that not only enhances resilience but strengthens inclusive peacebuilding –making communities safer, more resilient and self-reliant.

While there have been numerous positive developments to understand climate security and to act, the speed and depth of effort remains seriously short of current and future risks. As Dr Peter Ferguson and Robert Sturrock have shown, through the rest of this century we will confront a threat 'that will generate a conflict with which we are wholly unfamiliar. We cannot fight it, but we will be forced to struggle against it.'[xxx] Managing climate disruption is critical to future peace and security – globally, regionally and at home. Its importance, therefore, cannot be relegated behind other threats. Australia has a short window of opportunity to be more ambitious in its approach and to lead.

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[i] See analysis from the 93 authors of the Intergovernmental Panel on Climate Change 6th Synthesis Report (IPCC-AR6), and Press Release 'Urgent climate action can secure a liveable future for all,' 20 March 2023

[ii] Peter H Gleick, The implications of global climatic changes for international security, Climatic Change 15(1–2): 309–325, October 1989; and see Jon Barnett, Global environmental change I: Climate resilient peace?, Progress in Human Geography 43(5): 927-936, 29 August 2018

[iii] Warren Christopher, US Secretary of State, 'Green Diplomacy', Speech given at Stanford University, 9 April 1996; see Jon Barnett, The Meaning of Environmental Security: Ecological Politics and Policy in the New Security Era, Zed Books, London and New York, 2001

[iv] Kamen, Sydney, 'The world's first climate change conflict continues: Darfur is now on its own, fighting a forgotten war compounded by climate change', Think Global Health, 10 December 2021

[v] The CNA Corporation, National security and threat of climate change, 2007

[vi] See, for example, work from the Global Military Advisory Council on Climate Change (GMACCC) created in 2009

[vii] UN Security Council 5663rd Meeting Notes, S/PV.5663, 17 April 2007; and see the Group of 77 and China statement that outlines their concerns on the Council taking up the issue - Letter from the Permanent Representative of Pakistan to the President of the UN Security Council, S/2007/211, 16 April 2007

[viii] Report of the UN Secretary General, Climate change and its possible security implications, A/64/350, 11 September 2009; UN Security Council Presidential Statement, PRST/2011/15

[ix] Group of Friends on Climate and Security, Statement: UN Security Council Open Debate, 23 September 2021; The UN Climate Security Mechanism has been supporting UN and other Member State efforts since 2018

[x] Global diplomacy continues to push more concrete action, for example, a binding resolution in the Council. While the December 2021 open debate failed after tabling a resolution, it generated the second highest number of co-sponsors (113 non-members) in the Council's history. See Krampe, Florian, Cedric de Coning, 'Russia's 'nyet' does not mean climate security is off the Security Council agenda', SIRPI, 13 December 2021

[xi] UN Security Council Report, Climate change, peace and security: Open debate, What's in Blue, 12 June 2023

[xii] See recent examples of regional dialogue, policies and assessments from ASEAN, the Pacific Islands Forum, the European Union and African Union– The UN Climate Security Mechanism, 2023 Progress Report: Bridging climate action, peace and security, May 2024

[xiii] For a discussion on climate security in the PBC, see UN Security Council Report, The Peacebuilding Commission at 20: Progress, challenges, and the road ahead, 13 March 2025

[xiv] Development Intelligence Lab, Pulse check x: Australia's agenda, May 2025

[xv] See 'If we want peace, we need to prevent conflict', in APSF, First Quarterly Report - Give Peace a Chance, April 2025

[xvi] Sturrock, Robert, Peter Ferguson, The longest conflict: Australia's climate security challenge, Centre for Policy Development, 2015

[xvii] Australian Government, Department of Defence, Defence Strategic Review 2023, *Public Version,* 2023

[xviii] It acknowledges climate change as a national security issue, recognizing its potential to exacerbate geostrategic risks and impact Australia's national interests. Australian Government, Department of Defence, *2024 National Defence Strategy, Public Version, 2024*

[xix] As Ian Dunlop highlights from the ASLCG *Too hot to handle* report, 'To early March 2024, Marles had referenced the Indo-Pacific on 158 occasions, China 221, America 129 and AUKUS 202. By way of comparison, climate change appears 49 times, the word existential 12 times, and sea-level rise — the greatest climate concern of the Pacific — on just two occasions', Ian Dunlop, Climate security risks and Australia's failure, 3 May 2024

[xx] ASLCG, Too hot to handle: The scorching reality of Australia's climate–security failure, May 2024; for other regional analysis and recommendations see Bond, Isabelle, 'Climate security is an opportunity in Australia's regional strategy', The Strategist, Australian Strategic Policy Institute (ASPI), 26 November 2024, and; ASPI edited volume, The geopolitics of climate and security in the Indo-Pacific, February 2022

[xxi] Parliament of Australia, Inquiry into Australia's defence relationships with Pacific island nations, 1 April 2021, and; Parliament of Australia, Strengthening Australia's relationships in the Pacific, March 2022, see in particular *Chapter 4 Shared security and stability: Peace and security in the Blue Pacific*

[xxii] Australian Government, Australia's Nationally Determined Contribution: 2022 Communication, 2022

[xxiii] After being briefed on the report last December, Independent Senator David Pocock was quoted saying it was 'frankly terrifying [and] we're woefully underprepared for what's coming.' Karen Barlow, "Secret briefings on climate national security risk," *The Saturday Paper*, 15 March 2025.

[xxiv] Pacific Islands Forum Secretariat, *Boe Declaration on Regional Security*, Nauru, 5 September 2018

[xxv] Sengupta, Rukmini, "India Backs Loss and Damage Fund, Urges Fair Climate Financing" *Down To Earth*, 2 December 2023

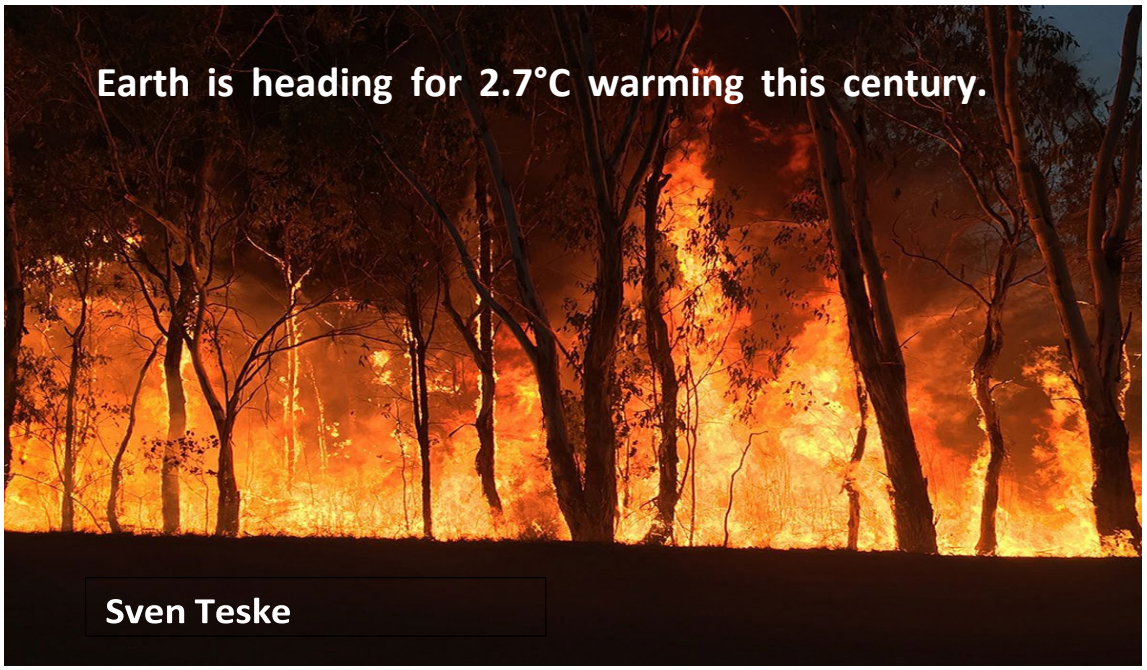
[xxvi] United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), *Asia-Pacific Disaster Report 2023: Navigating Risk and Resilience along the Decade of Action and Delivery for Sustainable Development*, 2023

[xxvii] In late 2023 Australia for example signed an innovative security pact with Tuvalu, offering climate aid and pathways to migrate to Australia in exchange for partnership, a novel blend of climate and security policy. See Australian Government, Department of Foreign Affairs and Trade, Australia–Tuvalu Falepili Union Treaty, signed 9 November 2023, entered into force 28 August 2024

[xxviii] Noting the previous government's brief: Australian Government, Brief to the Joint Standing Committee on Foreign Affairs, Defence and Trade, Strategies to Combat Climate Security Risks, 13 November 2023

[xxix] ASLCG, Too hot to handle: The scorching reality of Australia's climate–security failure, May 2024

[xxx] Robert Sturrock & Dr Peter Ferguson, The longest conflict: Australia's climate security challenge, Centre for Policy Development, 2015



Is climate action a lost cause? The United States is withdrawing from the Paris Agreement for the second time, while heat records over land and sea have toppled and extreme weather events have multiplied.

In late 2015, nations agreed through the Paris Agreement to try to hold warming well under 2°C and ideally to 1.5°C. Almost ten years later, cutting emissions to the point of meeting the 1.5°C goal looks very difficult.

But humanity has shifted track enough to avert the worst climate future. Renewables, energy efficiency and other measures have shifted the dial. The worst case scenario of expanded coal use, soaring emissions and a much hotter world is vanishingly unlikely.

Instead, Earth is tracking towards around 2.7°C average warming by 2100. That level of warming would represent "unprecedented peril" for life on this planet. But it shows progress is being made.

How did we get here?

Global greenhouse gas emissions have risen since industrialisation began around 1850. Carbon dioxide (CO_2) is far and away the most common greenhouse gas we emit, while methane and nitrous oxide also play a role. These gases trap the sun's heat in the atmosphere, preventing it from radiating back out to space.

In 2023, 41% of the world's energy-related CO_2 emissions came from coal, mainly for electricity generation. Some 32% came from burning oil in road vehicles, and 21% from natural gas used for heating buildings and industrial processes.

That level of warming would represent "unprecedented peril" for life on this planet.

The world is certainly feeling the effects. The World Meteorological Organization confirmed 2024 was the hottest year on record, temporarily hitting 1.5°C over the pre-industrial era. In turn, the world suffered lethal heatwaves, devastating floods and intense cyclones.

How are we tracking?

In 2014, the world's peak body for assessing climate science – the Intergovernmental Panel on Climate Change – began using four scenarios called Representative Concentration Pathways (RCPs). These four big picture climate scenarios are based on what actions humanity does or doesn't take. They comprise:

- rapid climate action, low emissions (RCP 2.6)
- two scenarios of some action and medium emissions (RCP 4.5 and 6.0)
- no action, high emissions (RCP 8.5).

The numbers refer to how many more watts of heat strike each square metre of the planet.

Of these four, only the RCP 2.6 scenario is compatible with the Paris Agreement's goal of holding climate change well under 2˚C.

But Earth is tracking towards somewhere between RCP 2.6 and 4.5, which would translate to about 2.7°C of warming by 2100.

IPCC experts also developed five pathways of possible social, economic and political futures to complement the four scenarios.

Of these pathways, we are tracking closest to a middle of the road scenario where development remains uneven, the intensity of resource and energy use declines, and population growth levels off.

While effective, these scenarios are now more than a decade old and need to be updated. In response, my colleagues and I produced the One Earth Climate Model to outline rapid pathways to decarbonise. We set an ambitious carbon budget of 450 gigatonnes of CO_2 before reaching net zero – a pathway even more ambitious than the RCP 2.6.

The US, European Union and China together represent about 28% of the global population, but are responsible for 56% of historic emissions (926 gigatonnes). The pathways compatible with 1.5°C give them a remaining carbon budget of 243 Gt CO_2. China would require the largest carbon budget to reach decarbonisation.

For this to happen, by 2050, the world would have to be 100% powered by clean sources and phase out fossil fuel use. This would limit global warming to around 1.5°C, with a certainty of just over 50%. We would also have to end deforestation within the same timeframe.

Emissions peak – are we there yet?

Emissions of carbon dioxide and other greenhouse gases have still not plateaued, despite sharply increasing renewable electricity generation, battery storage and lower-cost electric vehicles.

But there has been real progress. The EU says its emissions fell by 8.3% in 2023 compared to 2022. Europe's net emissions are now 37% below 1990 levels, while the region's GDP grew 68% over the same period. The EU remains on track to reach its

goal of reducing emissions by at least 55% by 2030.

Australia's emissions fell by 0.6% last year. The country is now 28.2% below June 2005

> *The world's largest emitter, China, is finally cutting its emissions.*

levels, which is the baseline set for its Paris Agreement goal of a 43% reduction by 2030.

In the US, emissions are still below pre-pandemic levels and remain about 20% below 2005 levels. Since peaking in 2004, US emissions have trended downward.

The world's largest emitter, China, is finally cutting its emissions. Huge growth in renewables has now led to the first emissions drop on record, despite surging demand for power. This is good news. For years, China's domestic emissions remained high despite its leading role in solar, wind, EVs and battery technology.

China produces almost one-third (31%) of the world's energy-related carbon emissions – not least because it is the workshop of the world. Every cut China makes will have a major global effect.

According to the IPCC, limiting warming to around 1.5°C requires global emissions to peak before 2025 at the latest. It now looks like the peak may occur this year.

Despite daily negative news, the decarbonisation train has left the station. In 2024, renewables accounted for more than 90% of growth in electricity production globally. Electric vehicles became cost competitive, while heat pumps are developing fast and solar is on a winning streak.

So, is it too late to save the climate? No. The technologies we need are finally cheap enough. The sooner we stop climate change from worsening, the more disasters, famine and death we avert. We might not manage 1.5°C or even 2°C, but every tenth of a degree counts. The faster we make the shift, the better our climate future.

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We have known for decades that climate change would impose significant costs. The warnings covered property damage from extreme weather events, increasing insurance premiums, rising energy bills, impacts on agricultural production flowing on to increasing food prices, loss of livestock and an increasing need for disaster recovery systems. The projected effects are now being realised. We have failed to take effective action to slow climate change and Australians are now suffering as a direct result.

Introduction the history:

While the science linking climate change to human activity was still contentious in the late 1980s, the insurance industry was already sounding the alarm (Berz, 1988).

Noting the rising cost of major natural disasters, Berz warned of increases in the frequency and severity of "tropical cyclones, tornadoes, hailstorms, floods and storm surges". There were specific warnings about the likely impacts of these severe events on Australian settlements more than thirty years ago (Minnery & Smith 1996). At the 1997 Kyoto conference of the parties (COP) to the Framework Convention on Climate Change, which enacted the Kyoto Protocol, the insurance industry warned that increasing numbers of households and businesses would be unable to afford the actuarially sound premiums for property damage. Early this century, the rising local cost of natural disasters was documented (Australian Climate Group 2004) with a warning from the world's second-largest reinsurer, Swiss Re, that "the costs of natural disasters, aggravated by global warming, threatened to spiral out of control". In a later report by the same group, an insurance executive wrote that the risk levels attributable to climate change "completely dwarfed" the provisions imposed on the industry by the prudential regulator (Coleman 2008).

Refusal to accept the science by forces within the Coalition which governed Australia from 1996 to 2007 and again from 2013 to 2022 meant little was done to slow climate change; at successive COPs, Australia was regularly in a small group with Saudi Arabia and other fossil fuel exporters holding back concerted international action. A report to the Howard government, showing that our emissions could be reduced by 30 per cent simply by moving to cost-effective existing technology (NFEE 2004), elicited no action. Until recently, Australia was one of the only advanced countries with no vehicle efficiency standards and it remains true that many of the domestic appliances on sale in Australia do not meet the minimum standards of the European Union.

Increasing costs:

Spencer (2025a) shows that climate change is already a very significant economic issue. In the twelve months to December 2024, the CPI rose 2.5 per cent but the average insurance premium went up 11 per cent – and this was a reduction from a larger 2023 increase.

The Insurance Council of Australia quotes an estimate by SwissRe that about 35 per cent of properties are now uninsured

The increasing premiums represent the insurance industry's need to cover the increasing costs of damage from extreme events. Spencer (Ibid) cites Insurance Council of Australia data showing inexorably increasing costs of property damage from extreme events, reaching $7 billion in 2022. As was forecast thirty years ago, more and more people are finding insurance either unavailable or unaffordable. The Insurance Council of Australia quotes an estimate by SwissRe that about 35 per cent of properties are now uninsured (Hall 2024). Inevitably, the consequence of the so-called "insurance gap" is an increasing demand for government support.

The disaster funding arrangement, DEFRA, is a joint exercise between the Commonwealth and the various States. The projections are terrifying. Spencer (Ibid) quotes a study by the McKell Institute for the Insurance Council of Australia, calculating that the cost of extreme events could be $35 billion a year by 2050 if we limit the increase in average global temperature to 1.5 degrees, noting that the withdrawal of the Trump regime in the USA from the Paris Agreement makes that target extremely challenging. Climate scientists are warning that our current trajectory is heading for a much greater increase, with consequently worse impacts (UN2023).

Spencer (2025b) also cites estimates of economic impacts in a Treasury study:

Treasury says a temperature rise of 3°C or more than 4°C by 2063 will have significant economic cost, potentially reducing output by between $135 billion and $423 billion in the absence of adaptation measures. Over the same period, crop yields from agriculture could be 4% lower without adaptation. Tourism could be affected by higher temperature, natural disasters and loss of sandy coastline due to erosion.

While this appears a dire warning, Neal (2023) argues that it significantly **understates** the likely cost. Traditional economic modelling assumes localised impacts, so a drop in grain production in Queensland can be solved by importing from Western Australia. Climate change increases the probability of drought on both sides of the continent, making it less likely there will be a simple internal solution. International studies suggest that perturbation of the jet stream could cause either drought or flooding simultaneously in

many countries, causing an international food crisis. Locally, severe weather events have already caused crises such as the Lismore 2022 food shortage (Benny et al 2023). Neal (Ibid) also notes that India reduced dramatically its rice exports when bad weather affected their production, suggesting that most nations will behave the same way after extreme events, scaling back exports to meet local needs.

Damage from extreme weather events is not the only economic impact of climate change. One international study found a clear relationship between increasing temperature and economic output (Kalkhul & Wenz 2020). By studying 1500 regions in 77 countries, these authors found "robust evidence that temperature affects productivity levels considerably". They concluded that an increase in average global temperature of 3.5 degrees would reduce economic output overall by 7 to 14 per cent, with greater decreases in poor tropical regions.

"the toll that the SEQ floods will have on mental health, disease and social impacts [is] estimated to be long-lasting, and cost approximately $4.4 billion"

A study of the 2022 Queensland floods estimated the total financial impact at $7.7 billion (Queensland Reconstruction Authority 2022). This extraordinary sum has several components. The tangible costs were headed by damage to property, about $2 billion, and to public infrastructure, about $490 million. The value of lost agricultural production was estimated at $254 million, with another $320 million reduction in other economic activity. Emergency responses, clean-up costs and the impacts of injuries were estimated to have cost a further $150 million. Finally, and perhaps most disturbingly, the report concluded that the health, social and community impacts were enormous: "the toll that the SEQ floods will have on mental health, disease and social impacts [is] estimated to be long-lasting, and cost approximately $4.4 billion".

As this report was being prepared, in April 2025 catastrophic floods hit western Queensland. The Department of Transport and Main Roads reported that about 5000 kilometres of public roads were closed or restricted, with a further 8300 kilometres of private roads affected. Graziers reported extensive stock losses, with some properties losing all their livestock and consequent financial costs as high as $1 million for individual grazing businesses. As with the 2022 South-East Queensland floods, there will inevitably be considerable impacts on disease and mental health.

Conclusion:

We were warned decades ago that climate change would have wide-ranging impacts. The increase in average global temperature above pre-industrial levels is now about 1.2 degrees and we are already paying a heavy price for the consequences of that increase. With no credible expert believing that the Paris lower target of 1.5 degrees is still achievable after the Trump regime's withdrawal from the agreement, we face the prospect of much greater increases within a

human lifetime. Since natural systems often behave in a non-linear fashion when subjected to significant pressures, we should be very worried about the likely impacts.

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Health, Climate Change and Our Human Future:

Climate Change as Present Reality, Not Future Risk

Arnagretta Hunter

Australia is a continent of extraordinary natural beauty and biodiversity, a remarkable place for people to live. Yet in recent years, our lives have been increasingly impacted by unprecedented extreme weather events: the catastrophic bushfires of Black Summer blanketing cities in smoke for months, once-in-a-century floods occurring repeatedly, severe droughts devastating rural communities, and record-breaking heatwaves. Climate change is not a future risk with distant targets for 2050 or 2100—it is a process actively reshaping Australian lives, health, and wellbeing today.

The heat and dry weather of 2019 and the following Black Summer bushfires that blanketed eastern Australia from August 2019 to February 2020 vividly demonstrate how climate-intensified disasters simultaneously impact multiple dimensions of human wellbeing, health and security—from immediate physical safety to mental health impacts of seeing apocalyptically dry landscapes swathed in dark red smoke, and the longer-term health impacts that are still being understood. This catastrophic event marked a turning point in our collective understanding of climate change and unprecedented events: what climate scientists had warned about as "conceptual, future risks" had become "here and now."

Health Impacts of Extreme Weather Events

The health effects from the Black Summer bushfires provide stark evidence of climate change's immediate impact on population health[i]. While 33 people were killed directly by fire, over 400 additional deaths occurred from smoke-related complications over the summer. Thousands were hospitalized, and approximately 12 million Australians were exposed to hazardous air pollution. The mental health effects continue to resonate

through our communities, compounded by subsequent challenges including COVID-19. Research continues to examine impacts on pregnancy outcomes, childhood development, lung function, cardiovascular disease and longer-term mental health.

These cascading health consequences from a single climate-intensified disaster highlight some critical challenges: climate events can simultaneously overwhelm healthcare capacity while degrading infrastructure precisely when it's most needed. The compounding effect of successive crises creates new patterns of chronic stress and trauma that further strain health resources and community resilience.

Climate scientists warn that these events will intensify in coming decades with one key phrase describing our future climate as one in which there is an increase in extreme events, their frequency and severity. What we've experienced over the past few years represents not an aberration but a glimpse of a future in which urgent mitigation is needed and one in which the adaptation measures to protect health and wellbeing will challenge our imagination.

Beyond Bushfires: How Climate Change Impacts Health

While dramatic events like Black Summer and the subsequent unprecedented floods over northern NSW and Queensland capture immediate attention, climate change produces a diverse range of challenges that impact our health in less visible but equally significant ways:

Heat-Related Mortality: Humans are sensitive to extremes of both heat and cold with both ends of the temperature spectrum associated with illness and death. In Australia, heat is already a significant driver of mortality, though this is not always well reflected in our health data. Heat impacts cardiovascular and renal disease, causes confusion, and can cause death through complications of

temperature exposure or directly from heat. Hot night-time temperatures are associated with social disruption with rise in intimate partner violence[ii]. Rising temperatures, particularly in regions approaching physiological limits for human habitation, represent an existential threat to communities across parts of the continent. Yet heat is not commonly recorded as a factor in illness or death within healthcare systems. As Longden et al. noted in The Lancet Planetary Health, there is "an urgent need to recognise and record" heat-related mortality to properly understand its true impact[iii]. This is also the case for environmental influence on health and wellbeing more broadly.

Water Security: Both drought and flooding impact health. Towns experiencing water insecurity face immediate challenges to sanitation and hydration, while changing precipitation patterns alter the distribution of water-borne diseases and vector populations that transmit infections. Research from communities around the world demonstrate increased cardiovascular and respiratory mortality for up to 60 days following flood events[iv]. The implications extend beyond health to agricultural productivity, economic stability, and potential population displacement. Water is a foundational part of human health and wellbeing. Without access to

drinkable, usable water health is compromised.

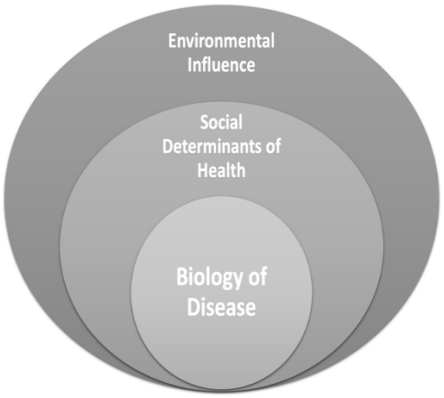
Health Service Disruption: As extreme weather events unfold, they impact communities, infrastructure, roads, and buildings as well as essentials such as power and communication[v]. This can have a major impact on delivery of vital healthcare services during times when they are needed. Medical facilities face physical damage, supply chain disruptions, power outages, and staff shortages during disasters, creating cascading vulnerabilities in health security systems.

Shifting Disease Patterns: Infectious diseases can be climate specific, most obviously vector borne diseases such as malaria and dengue fever, but also some bacterial and viral infections. Climate change is altering the geographic range and seasonality of many infectious diseases, potentially introducing new pathogens to regions without established immunity or medical preparedness. This represents an emerging health challenge.

A Biology-Society-Environment Model for Health

Perhaps a central challenge for the health impacts of climate change has been how our health system views the environment. For decades, medical education, training, research, and healthcare more broadly have been served well by a conceptual model incorporating a bio-psychosocial framework. Environmental factors can be incorporated into the model, as one of many moveable parts in the social determinants of health.

However, the challenge of increasing temperature, extreme weather events, changing climate, and water, food and soil contamination are increasingly demonstrating the foundational nature of the environment for human health and wellbeing. An unhealthy environment impacts health and wellbeing through many complex mechanisms, and environmental variables – particularly temperature, weather, biodiversity - are factors that will increasingly impact health and wellbeing this century. It is time for healthcare models to evolve to more explicitly acknowledge the foundational relationship between human health and our environment.



A biology-society-environment model (Figure 1) offers an evolution for our approach and can be applied across any specialty and condition. This framework recognizes that health depends on three interconnected layers: biology including genetics, physiology, and pathology; social determinants including education, socioeconomic status, and geography; and environment: a foundational layer including how weather, climate and biodiversity interacts with essential elements of human survival: air, food, and water, and where and how we live.

These three layers—biology, society, and environment—are not separate but deeply interconnected. For example, in cardiovascular disease, genetics and hypertension represent important biological variables; education and socioeconomic status are influential social determinants. The environment then provides the final layer of influences, as air pollution, agricultural changes, extreme weather events, and rising temperatures all increase

the incidence and severity of cardiovascular disease.

By explicitly seeing the foundational elements of our environment we develop better understanding of many diseases and conditions, as well as opportunities to reduce illness and suffering from poor health. We also see with clarity the caring relationship between people and planet as an essential one.

The Healthcare Sector: Both Challenge and Opportunity

The healthcare system itself presents climate change mitigation and adaptation challenges as a rich lens through which both can be approached. Healthcare is the sector of employment for 12.5% of workers in Australia and it is estimated to be 7% of Australia's carbon footprint[vi]. While energy is often a focus for reducing green-house gas emissions in healthcare approximately 60% of this footprint derives from consumables – the products and materials used in healthcare delivery.

Paradoxically addressing this impact is an opportunity to improve healthcare delivery and reduce its environmental impact. An estimated 30% of healthcare interventions provide little or no benefit to patients, and approximately 10% may cause harm[vii]. This "low-value care" represents both an environmental and clinical opportunity for improvement, although reducing such care has economic implications for the healthcare sector. In this paradox of unhelpful consumption and poor care lies an opportunity to imagine whether the healthcare sector could lead decoupling of carbon pollution and economic activity – how we might do this, through providing mindful, considered, impactful and patient-centred clinical care.

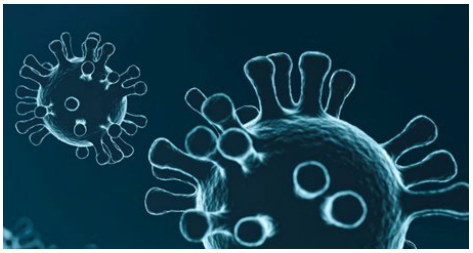
Climate adaptation takes place in communities, considering infrastructure and local resources in particular climate zones. Adaptation involves appreciating the risks, the increasing frequency and severity of extreme weather events, unprecedented and sometimes unimaged. Alongside the risks finding potential rewards and benefits from changes. And finally crucial resilience in adaptation might be best seen through our relationships – our community connections and capacity to care through adversity.

Effective climate adaptation requires integrating health considerations (illness, injury, disease, death) into both built and social environments. And within this framework are opportunities for co-benefits improving health and building resilience. Urban planning that incorporates green spaces, heat mitigation, and accessible services can simultaneously address climate vulnerabilities and improve population health. Similarly, strengthening social cohesion and community support networks builds resilience to climate impacts while addressing the mental health challenges associated with environmental change.

As people who understand communities, positioning healthcare workers in local climate resilience planning, leveraging community connections and expertise seems wise. Examples of this can be inspiring. After Black Summer the primary care organisation HealthWise lead a remarkable, community centred project Recover, Adapt, Connect across northern NSW and southern Queensland[viii]. Connecting communities in conversation

and building health resources with local focus, this project was community centred across a region that went on to face multiple extreme weather events (fire, smoke, floods, and hurricanes) as well as the COVID pandemic in just a few years, and improved community wellbeing.

This integrated approach also recognizes that communities cannot address overlapping crises in isolation. Climate change, biodiversity loss, economic insecurity, and health challenges are interconnected, requiring holistic responses that build resilience across multiple dimensions simultaneously.



Policy Progress and Global Leadership for Health and Climate Change

After more than a decade's advocacy, in 2023 Australia released its National Health and Climate Strategy[ix], a step forward in recognizing the interrelated challenges of climate change and health. This federal strategy is working through the challenge of decarbonising the healthcare sector, building health system resilience, global collaboration and importantly developing a health-in-all-policies approach that brings the health lens into climate change and other policy discussions across government.

Alongside the national strategy, health and climate change has been an advocacy priority for leading health organisations including medical colleges such as the RACGP, RACP, ACEM and advocacy organisations including the AMA. Health and climate change are increasingly recognised in health-sector education.

For our healthcare sector, there is an important opportunity in better acknowledging and understanding this foundational relationship between people and place.

Health concerns are increasingly prominent in global climate negotiations, including at the Conference of Parties (COP) meetings. Health organisations such as the World Health Organisation have recognized climate change as a fundamental threat to human health and one of the greatest health challenges of this century.

Conclusion: Health as a Compass for Climate Security

Health, wellbeing, and survival are the most compelling arguments for addressing climate change. By framing both mitigation and adaptation through a health lens, we identify actions that deliver immediate benefits alongside long-term environmental protection.

Many climate mitigation actions—from reducing air pollution to creating more walkable communities—generate significant health co-benefits. Similarly, adaptation strategies that prioritize health outcomes tend to strengthen community cohesion and protect vulnerable populations. This "health dividend" from climate action can build broader support for environmental policies while delivering immediate improvements in quality of life.

For our healthcare sector, there is an important opportunity in better acknowledging and understanding this foundational relationship between people and place. The increase in frequency and severity of extreme weather events, the changes to our natural environment and its

biodiversity impact on our health and wellbeing in myriad ways across all stages of life and across all medical specialties. Building environmental variables into our clinical research will help preserve and protect life and help maintain focus on importance of climate change mitigation.

By recognizing the profound connections between human health and environmental stability, we can develop approaches to climate security that strengthen both individual wellbeing and societal resilience.

As Australia faces increasing climate volatility, health provides a useful compass for navigating uncertainty. Communities that prioritize healthcare access, preventive measures, and equitable distribution of resources will be better positioned to withstand environmental shocks. The health sector itself can serve as both leader and model for climate resilience, demonstrating how essential services can adapt to changing conditions.

Our human future in a changing climate depends not only on reducing emissions and adapting infrastructure, but on nurturing the underlying determinants of health: clean air, nutritious food, safe water, appropriate shelter, and supportive communities. By recognizing the profound connections between human health and environmental stability, we can develop approaches to climate security that strengthen both individual wellbeing and societal resilience.

Building the layers of biology, society and environment across healthcare research, policy, and interventions will place us in a better position to protect and preserve health and wellbeing as the climate changes through this century and beyond. By centring health in our climate response, we acknowledge that our ultimate security lies not just in technological solutions or policy frameworks, but in protecting the fundamental planetary systems that sustain human life.

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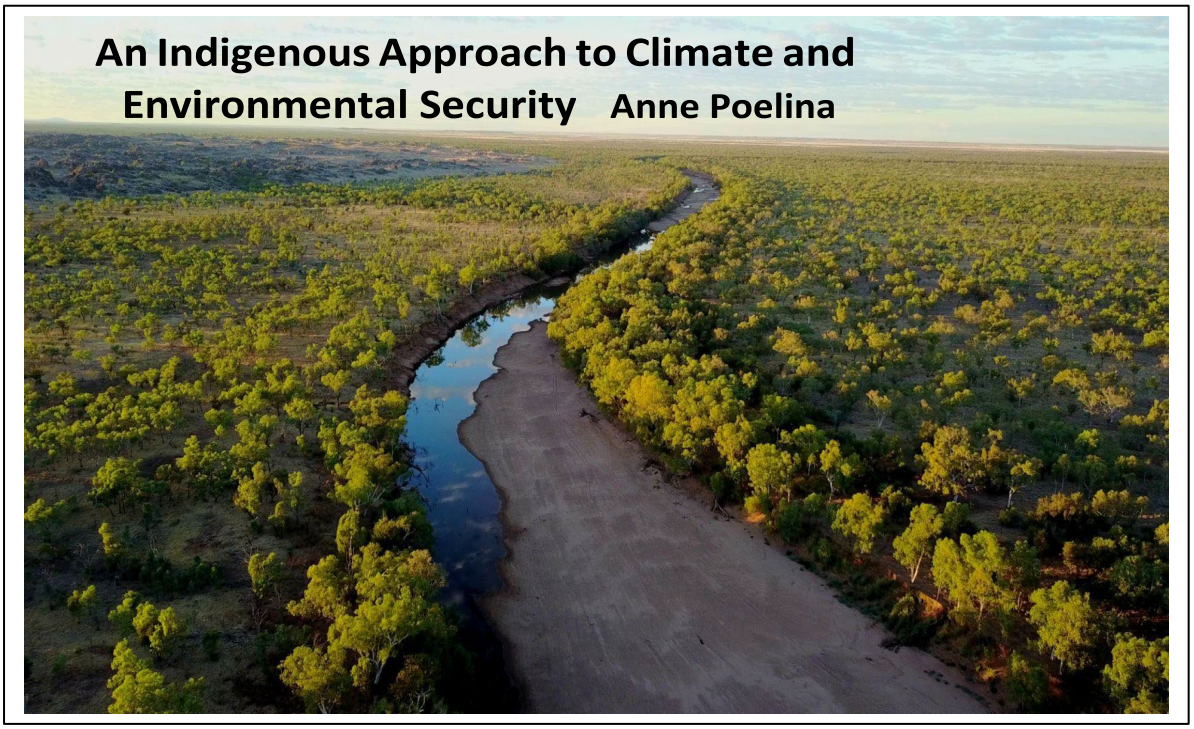

This chapter explores how climate and environmental security impacts on peace and security for all Australians and draws on a submission to the Western Australia Government from the Yi-Martuwarra People.[i] Importantly, it focuses on the role of Indigenous Australians living in the Martuwarra Fitzroy River Watershed, in Western Australia and the work being undertaken across northern Australia to ensure the people of the region continue to have the right to live in an environment free from harm. Indigenous knowledge can create a shared understanding of a better future for our Nation, humanity and Mother Earth- our common home in this time of uncertainty due to climate change and environmental insecurity.

Indigenous people make up *only 6%* of the world's population yet we remain stewards and custodians who continue to *manage over a quarter* of the world's land surface, living waters and biodiversity. As Indigenous peoples we have, *descended from original occupants* of place-based estates, we *possess knowledge and stories past down across the generations* 'reading and feeling Country'.

Kirsty Howey lawyer and environmental defender from the Environment Centre of the Norther Territory (ECNT speaking to the global unique values of northern Australia said "our *world-famous national parks, to our stunning free-flowing rivers, our iconic springs and ancient aquifers, and endless intact savanna, our nature is a global treasure. Yet, we are also facing unprecedented threats. Northern Australia is likely to be unliveable within a couple of generations due to climate change. Some of our defining ecosystems – from the Arid Zone to our intact Savanna – are literally collapsing*". Added to our climate and environmental impacts is the reality our policies and legal systems are no longer fit for purpose and are failing our Australian people, places and living water systems.

Time to catch up with international commitments

In facing the collapse of multiple systems, the Australia Institute provided a scathing analysis on the Western Australian (WA) Climate Bill describing the proposed draft in its public consultations of the 'Bill' as 'weak and a blow to national emissions target'. The Institute provided key insights to demonstrate the inadequate and inappropriate response to the state's rising energy emission to the Federal Governments national emissions targets. This call for action on climate change and the environment are essential, if we are to meet the targets of the 2030 Global Biodiversity Framework – there is no other viable way.

In keeping with distributive and procedural justice, and from a human rights-based approach to justice and equity, as citizens we have a right to life including a right to a clean and healthy environment. This right of every world citizen was affirmed by the United Nations Human Rights Council in a resolution (48/13) on 8th October 2021, '*recognising that people everywhere have a fundamental human right to a safe, clean, healthy and sustainable environment*'. This was an historic resolution that has the potential to improve the life of everyone in our Nation and on the planet. Therefore, any development that will impact on the land, water, people, and the environment inclusive of atmosphere and underground water and geological systems within the Martuwarra Fitzroy River Watershed must be developed by the state of WA in an "ecologically sustainable development" (ESD) approach in accordance with this important consideration.

ESD was incorporated into WA, and all State, Territory and Federal, environmental planning laws across Australia following the Rio Declaration 1992. The principles governing Development and the Environment, and specifically how governments should ensure that the right balance is struck between rights to development and rights to live in harmony with the environment, were bedded down in the Rio Declaration 1992. Importantly, Principle 10 of the Rio Declaration sets out the right of citizens to information about environmental hazards held by government.

Principle 10 of the Rio Declaration states that:

"*Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, and each individual shall have appropriate access to information concerning the environment that is held by public authorities, including sharing information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.*"

The State of Western Australia (WA) has the same obligation to enable citizens of the state to have access to information held by the WA government, which concerns hazardous materials and activities in our communities. In this regard, WA Parliament has previously acknowledged that "*the concept of ecologically sustainable development was adopted as a goal by Australian governments, including Western Australia, in 1992 following the Earth Summit in Rio. Ecologically* sustainable development is a philosophy defined by the National Strategy for Ecologically Sustainable Development as development which aims to meet the needs of Australians today while conserving our ecosystems for the benefit of future generations." Government must also provide the opportunity for citizens to participate in the decision- making process - particularly where it directly impacts our land, water, human rights and wellbeing.

On the other hand, draconian anti-protest laws have been introduced, rendering peaceful climate change protests a criminal act and serving to actively silence dissent, as noted by human rights experts and United Nations Special Rapporteurs

The end of business-as-usual

On one hand, the state is protecting industry interests to provide '*certainty to their business-as-usual model*', to the extent of pressuring the Environmental Protection Authority (EPA) to refrain from requiring large emitters to offset their emissions. On the other hand, draconian anti-protest laws have been introduced, rendering peaceful climate change protests a criminal act and serving to actively silence dissent, as noted by human rights experts and United Nations Special Rapporteurs[ii].

Coupled with the withdrawal of government funding and essential services from Indigenous settlements, which serves mining interests through the de facto depopulating of resource rich remote areas, the picture emerges that the Western Australian government is "investing to support Traditional Owners to develop adaptation strategies to the climate crisis" However, the government continues to pursue a development model that increases risks to climate stability and thus people, culture and place for the benefit of narrowly defined, short-term economic gain. Yi-Martuwarra people, Indigenous Australians who belong to Martuwarra, Fitzroy River (WA) and our fellow Australians, and indeed our planetary citizens, cannot be sacrificed for a politics of economics resulting in Genocide and Ecocide for Yi-Martuwarra People. We need a Total Reset!'

This development-at-all-cost-approach in Western Australia, is reflected in the State of the Environment reporting, which describes the natural environment as "*poor and deteriorating as a result of increasing pressures from climate change, habitat loss, invasive species, pollution and resource extraction*"[iii]; it also bears noting that Western Australia ceased reporting in 2007.

This situation is mirrored globally where—except for lands, living waters and the environment managed by Indigenous and native peoples[iv]—the "overall environmental situation [...] is deteriorating"[v]. The Intergovernmental Panel on Climate Change 2022 report reaffirms that climatescience is unequivocal: rising temperatures are

already accelerating environmental change and extreme weather events. When compared globally, Australia is particularly vulnerable should these human-induced trends continue or worsen. In Western Australia, the state's South-West is drying at one of the fastest rates in the world[vi], while the Kimberley region is facing the likely prospect of extreme heat, fires and flooding as result of global warming, adversely affecting human and environmental health, exacerbating food insecurity and undermining local hybrid economies.[vii]

Action is needed now

There is immense potential to unlock new economic initiatives across Australia if the regulators of the WA Climate Bill are able to engage with Indigenous peoples' priorities for land and water management and development. The Martuwarra Fitzroy River Council (MFRC) has extensively planned for Martuwarra governance, has identified appropriate forms of development in our MFRC Conservation and Management Plan.

Western Australia is the only state with growing emissionssince 2005, yet the only one without an interim 2030 emissions target[viii]. The disingenuous use of 2020 as the state's emissions baseline is indicative of the lateness of the state government's response to the climate emergency. Australia's national emission target is not aligned with the Paris goal of 1.5° [ix], so Western Australia's offer of even less ambitious targets is disappointing, and a failure of due diligence and fiduciary duty to protect our right to life, our lifeways and livelihoods and wellbeing of Yi-Martuwarra people, now and into the future.

A commitment to net zero by 2050 alone is insufficient in the face of projected increases in emissions to 2030, which will exceed the state's carbon budget consistent with the 1.5° target.

Furthermore, it removes the opportunity for inter-generational equity for all Australian young people to inherit a world, free from pollution and contamination and harm. If these targets are not met, it will diminish their right to reach their full potential, as citizens of our Country and the planet, Mother Earth. It will exacerbate Climate Change as is we know it into Climate Chaos.

A commitment to net zero by 2050 alone is insufficient in the face of projected increases in emissions to 2030, which will exceed the state's carbon budget consistent with the 1.5° target. To be compatible with the Paris 2030 target, emissions in Western Australia would need to peak as soon as possible, followed by a steep reduction of 49% by 2030 (below 2005 levels), and then reaching zero emissions by 2050[x]. The largely technology-driven and so- called 'responsible' approach to emission reduction proposed by the government is woefully inadequate and out of step with climate science as well as the international community. The targets the government has set are largely aspirational and lack concrete policy-backing as well as enforceable measures

for under-delivery. Also, given the EPA's recent history, the Authority's ability and capacity to monitor and importantly enforce decarbonisation efforts of industry is open to question.

Action is needed now, and this should include appropriate policy settings for regenerative industries. MFRC and similar organisations are ready to go now. A delay will only increase the current ecological and social damage caused by climate change and structural marginalisation. The planetary crisis is an Australian crisis too. The MFRC are engaging in climate change research, and we are also attentive to changes to Martuwarra and have observed the following threats to Martuwarra and our communities:

- Increased temperatures including severe summer temperatures.
- Increasing sea levels.
- Biodiversity loss from flooding (connected to extreme rainfall events that are predicted to increase further due to ocean warming)
- Increased food and medicine insecurity due to the reliance of our communities on supplementing their diets with local food sources that are already less abundant due to climate change.
- It will destroy our First Law, and duty of care to protect the Martuwarra's right to live and flow.
- It will destroy our spirituality, our culture and our due inheritance to live peacefully on our lands and living waters, with our non-human kin.
- It is a matter of great public interest.
- It will result in ecocide and genocide of our Yi-Martuwarra people.
- It will demonstrate ongoing colonialism through invasive unjust development.
- It will demonstrate 'war like' behaviour by government upon Australian lands and waters of Yi-Martuwarra people.

Opportunities for climate sensitive "Forever Industries"

We cannot wait for extended periods to address these contemporary problems that weaken our living environments and our communities. These targets ignore the immediate problems faced in regional Western Australia, and particularly the West Kimberley. We need targets that drive strong responses and guarantee effective and appropriate policy engagement. Including regional targets and reporting to ensure that the benefits of climate mitigation are equitably distributed and appropriately addressed by the adaptation strategy and sector adaptation plans.

Given the much-discussed failures to address the harms of Indigenous people's dispossession by senior leaders across the Country[xi]it is imperative that adaptation strategies should be legislated to address

Indigenous perspectives and circumstances through effective and appropriate consultation. The sector adaptation strategies must be required to address and report on engagement with Indigenous peak organisations. To shift from extractive to regenerative economies the Council are building the 'Forever Industries' by incorporating ancient wisdom, incorporating all forms of capital into the modern concepts. We are building the economics of wellbeing through our work Trail for Life -

generations. Redvers and her colleagues provide Indigenous solutions to the climate and biodiversity crises.

Conclusion

The evidence is clear that best practice in climate change adaptation and natural resource management engages with Indigenous Knowledge[xii]. There is increasing global recognition of the importance of different knowledge frameworks for the sustainable management of natural resources. Indigenous knowledge, drawing on over 65,000 years of presence and attention, enriches and counterbalances Western viewpoints. It creates more resilient social-ecological systems through the incorporation of a broader information base and consideration of a wider diversity of culturally derived ideals (biocultural diversity). An emerging application and updating of Aboriginal seasonal knowledge is critical to climate change research and adaptation. There is nothing new about climate change to Indigenous people who have retained and adapted knowledge for thousands of

MFRC elders continue to share our ancient wisdom as we are under a moral obligation to ensure intergenerational equity, for our young Yi-Martuwarra people. Importantly to hold this right and duty of care to ensure Martuwarra Fitzroy River and its people and environment is protected for generations to come. ***Martuwarra, Fitzroy River, always was, always will be***. We seek a peaceful resolution to engage with the WA government to build the body of evidence for better practice, to ensure our lifeways and livelihoods ensure intergenerational equity for our young people. We want **all** Australians to have peace through climate and environmental security. Importantly, their right to access to their due inheritance as Australians in a 'lucky Country and a fair go for all'. Importantly to have a climate chance and to live in a clean environment free from harm.

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Ungoverned spaces: The regional threat to Australia

Albert Palazzo

One of Australia's most fortuitous security advantages is its remoteness from regions of tension and conflict. Sydney is nearly 14,000 kilometres from Baghdad while Kiev sits somewhat further at almost 15,000. Being an island continent also contributes to the nation's security since the necessity to cross water complicates any adversary's plans. However, climate change is likely to upend the tranquillity of Australia's security and make the nation less safe from foreign threats. As the effects of climate change multiply and worsen, the ability of Australia's neighbours to cope with the ensuing stress will be sorely tested.

Overwhelmed by relentless climate shocks, many nearby states will descend into chaos, conflict and war, and become ungoverned spaces as their governments collapse or are removed. Rather than continuing to rely on distance as a source of security, the Australian government will need to manage a future in which climate change brings peril to its part of the world.

Ungoverned spaces are defined as territories in which the authority of the state has ceased to exist because the central government is unable or unwilling to maintain control or influence local populations.

Of course, governance does not fully disappear. Instead, the central government is superseded by a mix of sub-state actors such as criminal gangs, militias and religious sects, as well as tribal- and clan-based entities. In many cases, governance follows the law of the gun. Importantly, it is possible for ungoverned spaces to occupy only part of a country. For example, Pakistan's federal government has limited influence over the state's tribal areas, the territories that sit alongside its highly porous border with Afghanistan.

Within ungoverned spaces, officially recognised borders are meaningless, as are international laws and agreements. The archetypical ungoverned space is Somalia after its breakup as an organised political entity in the early 1990s.

In many countries climate change will create stressors — food and water shortages, habitat loss, land inundation and force migration — that threaten the continued existence of the social contract as well as the ability of central governments to exert authority. Those states that are at greatest risk from climate change shocks are the lesser-developed and poorer countries that are commonly referred to as the Global South, the very countries that bear the least responsibility for causing the climate crisis.

Some, such as the Pacific Island states, are even expected to disappear physically as the rising seas of a hotter world inundate their land.

Inhabitants of these places, as an enduring legacy of western exploitation from the colonial era, tend to be poor and undereducated, have a shorter life expectancy and live under harsher conditions than those found amongst the states that make up the 'rich' world. Unfortunately for these countries, their ability to adapt to climate change will likely be low when compared to a rich country such as Australia. Some, such as the Pacific Island states, are even expected to disappear physically as the rising seas of a hotter world inundate their land.

Climate change-induced stressors are predicted to generate instability within vulnerable states, leading to partial or total societal collapse as governments prove unable to provide essential goods and services. For any people, one of the most critical needs and the most potent stressor is an inadequate supply of food. The United Nations anticipates that over the next 30 years, climate change will severely affect global food supply and food insecurity will worsen as a result of reduced harvests. Jared Diamond describes the future for such states in his book *Collapse: How Societies Choose to Fail or Succeed*. He writes:

> *When people are desperate, undernourished, and without hope, they blame their governments, which they see as responsible for or unable to solve their problems. They try to emigrate at any cost. They fight each other over land. They kill each other. They start civil wars.*

In any society, where stressors overwhelm resilience, the likely result is a break-down in governance as collapse takes hold.

It may be comforting to assume that what happens in ungoverned spaces is not relevant to Australia and that such places couldn't possibly pose a security risk to the nation.

Unfortunately, that assumption is incorrect. As the former US Secretary of Defence, Jim Mattis, observed, "ungoverned spaces do not remain in those same spaces." The piracy and missile attacks on merchant ships sailing around the Horn of Africa and transiting the Red Sea demonstrate that ungoverned actors have the ability to cause harm beyond their notional borders. It is only with difficulty and at great expense that a US-led maritime coalition has provided security for merchant ships transiting the Red Sea. Imagine the challenge if much of the world's trade routes, including the narrow waterways through which much of Australia's trade passes, were surrounded by dozens of ungoverned spaces.

The population of Australia's primary region of interest, extending from the Malayan Peninsula to the Pacific Island states, numbers approximately 500 million people. Except for those living in Singapore, New Zealand and Australia, they are mostly members of the Global South and represent the potential for the creation of many Somalias. As nearby ungoverned spaces proliferate, the Australian government will need to decide how it manages the security risks they create.

The first of these is the change such spaces impose on the existing system. The Australian government and its diplomatic personnel work within the Westphalian system of state-to-state representation. However, in ungoverned spaces contacting your opposite number in in a different country's bureaucracy will become much more difficult; there is likely to be no one serving in a comparable position. As states fracture into areas dominated by sub-state actors, there could be hundreds of political entities where now there are only a handful.

Additionally, the chaos of ungoverned spaces will mean that achieving Australia's foreign policy will require acceptance of a constantly shifting dance of people and titles as different groups contend for control, eliminate enemies, and win power. Rather than operating in a relatively stable foreign policy space, Australia will need to become adept at advancing or protecting its interests across a region that is in constant, often violent, motion.

Some actors that secure power will be organisations that are essentially criminal gangs. Across Mexico, for example, drug cartels control sections of the country, usurping the authority of the central government. Something similar is likely to occur in Australia's near neighbourhood, with local power brokers securing revenue from activities such as piracy, extortion and kidnapping, drug trafficking, environmental crimes, and smuggling. When such activities are against Australian interests, it will necessitate government action.

As a trading nation, Australia relies on safe passage across the seas for its exports and imports. Much of this trade transits narrow straits such as the Malacca between Sumatra and the Malayan Peninsula, as well as the Lombok and Sunda Straits, which cut through the island barrier to Australia's north.

If these sea-lanes are overwatched by ungoverned spaces, something similar to what is currently happening in the Red Sea could occur. With relatively simple missiles and drones, or speedboats carrying armed fighters, local warlords could close these bodies of water by attacking passing ships. In order to maintain the security of its trade, the Australian government would need to task the Royal Australian Navy to escort merchant ships, use its weapon systems to shoot down missiles and drones, or even put troops ashore to push militants from their launch points.

Australia might have to accept the need for an extended capacity-building effort to help locals restore governance and take responsibility for safeguarding passage of these straits. Many scenarios could see an Australian military commitment lasting an indefinite and lengthy period; Operation Prosperity Guardian, the US-led mission in the Red Sea, is now more than two-years old with no end in sight.

Ungoverned spaces will also likely generate humanitarian crises, and the Australian government will need to decide its level of involvement. For places of particular importance to Australia, such as Port Moresby, the government may decide to deploy military forces to stabilise the area. Humanitarian missions tend to require troops on the ground in order to separate warring factions, enforce the disarmament of fighters, and patrol curfews.

The Australian government could decide that its national interests were best served by throwing its support behind one group over another in an effort to establish a degree of governance by force. The consequence could embroil Australia in

what would effectively be a civil war, with soldiers involved in heavy and lethal combat. Casualties would be unavoidable. Furthermore, ungoverned spaces could drive humanitarian efforts by government and non-government aid agencies to dispatch emergency relief, especially food, water and medical care, as well as training staff to assist in building local governance.

When faced with shortages of necessities, people may move to places where their needs are more likely to be met. Climate change is expected to result in large scale movements of desperate people who believe their best chance of survival is to go somewhere else. There is no shortage of examples of such movements, but recent ones include the migration of Syrians from that war-torn country or the Rohingya fleeing from state oppression in Myanmar.

At some point, as the governments of nearby states collapse and their societies descend into chaos, Australians will need to decide what degree of hospitality they will provide, if any.

The appropriate degree of welcome that Australia should offer refugees is already a contested subject; those seeking sanctuary by boat have been demonised by both major political parties. The issue of 'boat arrivals' has become a frequent election issue and the slogan 'stop the boats' has, shamefully, proven its electoral worth with voters. John Howard was able to reverse polling trends in the 2001 election over the Tampa Affair when he denied 433 asylum seekers entry to the country. Since 2013, Australia has maintained Operation Sovereign Borders, a military-led security operation to deny entry to what successive governments call "unauthorised maritime arrivals."

While the Tampa incident and boat arrivals have provoked angst for some elements of Australian society, the numbers of refugees involved has always been modest by world standards. However, climate change promises to spark mass migrations of people from states that are no longer able to meet their needs.

Instead of refugees seeking access in their thousands, Australia may see migration numbers reach into the millions. If this occurs, it will be a political, security and, perhaps most importantly, a moral issue for all Australians. Australia is more capable than most states to weather repeated climate change shocks, particularly when compared to the states of the Global South. At some point, as the governments of nearby states collapse and their societies descend into chaos, Australians will need to decide what degree of hospitality they will provide, if any.

How those who live in coming ungoverned spaces precipitating by climate disruption react to their future is yet to be decided. It is likely that they will be fairly angry since they are the people least to blame for climate change; that responsibility belongs to those who live in the rich world. Australia has largely ignored the pleas of its regional neighbours to eliminate its fossil fuel production and use. Australians may soon discover that the weak can harm the strong as the region enters a period of destabilisation induced by climate change shocks. Australia will need to decide how it responds to a world in which much of humanity lives in ungoverned spaces – where the rule of law is often the same as the rule of the gun.

To date, Australia has failed in its moral obligation by not moving more quickly to rein in its contribution to greenhouse gas emissions. The consequence is that in coming decades Australia will need to contend with a different and more chaotic security environment — managing and engaging with ungoverned neighbours while also providing security for the nation.