



To: Minister Hunt

Subject: GLOBAL HEALTH ALLIANCE - HEALTH IMPACTS OF CLIMATE CHANGE (WITH TALKING POINTS)

Minister Hunt		Date: / /	
Comments:			
Contact Officer:	Angela Wallbank	Assistant Secretary, Strategic Policy Branch, Portfolio Strategies Division	s22
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Key Issues:

1. On 31 July 2019, the Global Health Alliance Australia (GHAA) and Monash University are expected to launch a policy paper, *The impacts of climate change on our health in Australia and the Asia Pacific Region: "From Townsville to Tuvalu"* (Policy Paper) (embargoed copy at Attachment A), detailing the impacts of climate change on the health of Australians and on those in the Indo-Pacific region.
2. The Policy Paper makes a number of recommendations to the Commonwealth and state and territory governments that aim to reduce the health impacts of climate change. A summary of Policy Paper recommendations is at Attachment B.
3. The Policy Paper focusses on Australia's role domestically and in an international development context, with the recommendations in the form of a nine point plan. Recommendations include: making climate change a standing item on all COAG Council agendas; requiring that all Cabinet Submissions contain a climate change impact analysis; and tasking the Productivity Commission to assess the cost-effectiveness of action on climate change and associated co-benefits on health.
4. Australia's domestic policies have attracted criticism for perceived lack of coherence with Australia's international aid and development policies and Paris Agreement emissions reductions commitments, and continue to be a sensitive issue. A number of recommendations in the report are a matter for the Minister for Foreign Affairs.

Talking Points:

- I welcome the GHAA report 'From Townsville to Tuvalu' and look forward to taking the time to consider it in more detail.
- Australia has a strong and resilient health system. Australia's response to long-term and acute effects of climate change are managed through this system, including through a range of programs to address health conditions that are susceptible to environmental pressures.
- These national programs have the capacity to respond to short and long-term changes in disease prevalence, and are regularly reviewed to ensure they best meet the health needs of Australians.
- The Department of Health maintains a comprehensive surveillance system to monitor changes in incidence and trends in communicable diseases, including changes that may occur due to climate change.
- In addition, the Department of Health consults regularly across Government to ensure that Australia's capacity to respond to the impacts of climate change are appropriate and effective. This includes working with the Department of Environment and Energy on the *National Climate Resilience and Adaptation Strategy* and the Department of Home Affairs on the development of the *National Disaster Risk Reduction Framework*.
- The Australian Government continues to recognise the importance of global action and remains committed to the Paris Agreement. Australia is working closely with Pacific countries on the issues of greatest concern, including climate solutions and disaster resilience.

Background:

The GHAA is a national peak body representing 47 organisations that aim to build sector capacity to achieve more equitable and improved global health outcomes. One of the report's recommendations is to review and discuss the Climate and Health Alliance's Framework for a National Strategy.

Addressing the health impacts associated with climate change is a public health issue, predominantly managed by state and territory governments. The Commonwealth has a role in influencing and coordinating this work through the COAG Health Council and subcommittees. The Australian Health Protection Principal Committee has climate change listed as a priority area in its work plan.

Over the period of 2009-2018, National Health and Medical Research Council provided \$12.96m for research on climate change and \$54.35m for research on environmental health. The Medical Research Future Fund priorities for 2018-20 include global health and health security.

The Policy Paper recommends developing an implementation agenda for the health impacts of climate change (Recommendation 4). This is also likely to be a topic of discussion at the Pacific Health Ministers Meeting (PHMM) on 6 August 2019. Currently there are no GHAA officers registered to attend the meeting. The PHMM will consider a draft roadmap for implementing the *World Health Organization's Pacific Islands Action Plan on Climate Change and Health*, launched by Pacific Ministers in the margins of the World Health Assembly in May 2018. Your briefing for this meeting is being prepared separately.

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Attachments:

A – Embargoed report: ‘From Townsville to Tuvalu’.

B – Key recommendations of the Policy Paper.

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Health and climate change in Australia
and the Asia Pacific region

“From Townsville to Tuvalu”



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rise
REVITALISING INFORMAL
SECTORS AND
THEIR ENVIRONMENTS

Policy advice for
Governments in Australia
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Health and climate change in Australia
and the Asia Pacific region

“From Townsville to Tuvalu”

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The Australian Council for International Development (ACFID) is the peak Council for Australian not-for-profit aid and development organisations. The Global Health Alliance Australia is an Affiliate Member and shares ACFID's Vision of a world where all people are free from extreme poverty, injustice and inequality and where the earth's finite resources are managed sustainably.

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Endorsements



Marie Stopes International Australia is proud to contribute to this report, recognising the links between sexual and reproductive health and rights and effective action on climate change.



The Climate and Health Alliance welcomes the focus of the Global Health Alliance on climate change and human health, and supports the recommendations of this report.

Foreword: Beyond Mosquitoes

At the 2019 Global Health Security Conference in Sydney, it was heartening to hear The Hon. Greg Hunt, Australia's Health Minister, framing climate change as a health security issue, including specific reference to the changing distribution and abundance of mosquitoes and potential for increasing rates of vector borne diseases such as malaria and dengue fever.

But from Townsville to Tuvalu, from Nillumbik to the Northern Territory, impacts of climate change on our health include potential for increased prevalence of many other conditions: heat illness, asthma, heart disease, anaemia, injuries, and other infectious diseases including diarrhoea. Many of our water sources will become undrinkable. Climate change has even been linked to depression.

As with all health challenges, primary prevention should be our top priority. In the case of climate change, this means climate change mitigation to avoid potentially unmanageable health impacts. Climate change adaptation is a form of secondary prevention, addressing potential health impacts from unavoidable climate change.

In responding to the health impacts of climate change, Australian State and local governments can play a key role by investing in adaptation and mitigation responses that have co-benefits for human, animal and environmental health.

For example, improved housing design, orientation and ventilation will protect the health of people during heatwaves, reduce demand for energy and risk of blackouts, and also reduce the size of household energy bills. Investments in sustainable urban mass transit systems will enable active travel and improve population levels of physical activity, reduce toxic air pollution from motor vehicle use, and also reduce greenhouse emissions from urban transport.

The Australian Federal Government and its various departments can support adaptation investments that will help people in Australia and across our region to cope with the already known impacts of climate change on our health and, at the same time, can also invest in renewable energy sources that will prevent as yet un-documented health impacts.

With support from Monash University, the Global Health Alliance Australia has developed this report as a platform for strengthening Australia's response to the health impacts of climate change. Australia and our near neighbours in the Asia Pacific region are highly vulnerable to climate change. We have no time to waste.



Misha Coleman

Executive Director, Global Health Alliance Australia

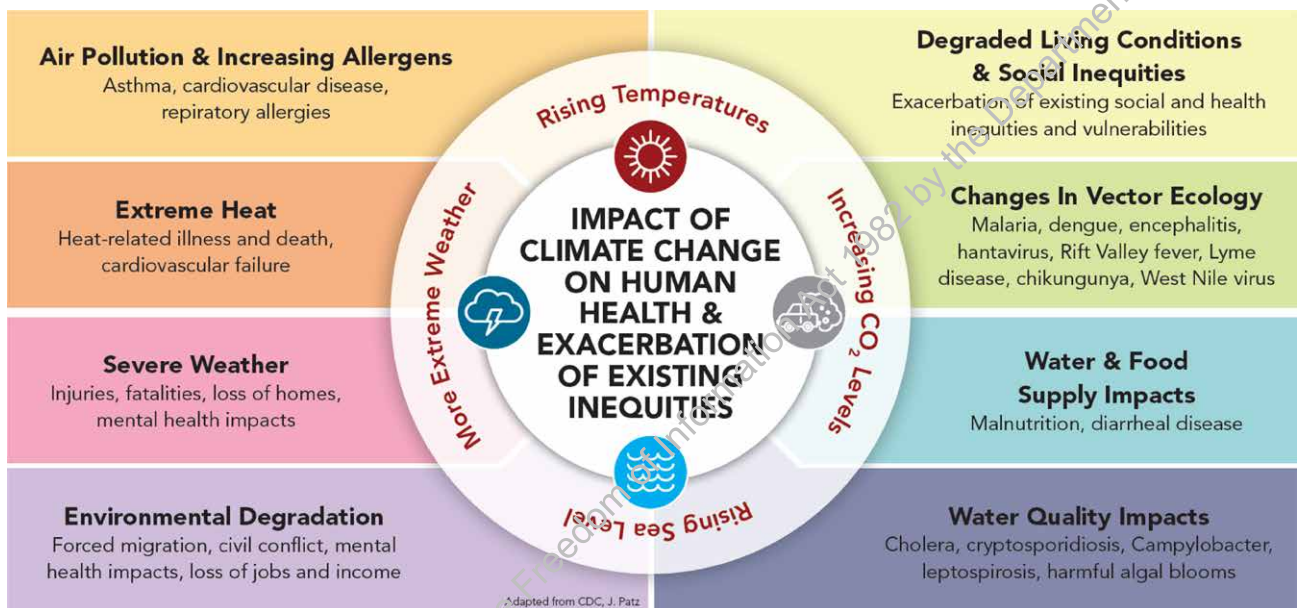


Anthony Capon

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Snapshot of the impacts of climate change on our health



California Department of Public Health¹

This document was released under the Freedom of Information Act, 5 U.S.C. 552, by the Department of Health

Overview: addressing climate change's health challenge

Most people accept that climate change is transforming the global atmosphere and environment. Yet far fewer understand the significant impacts that climate and environmental change are having on human health. In the Asia Pacific region, climate change is raising sea levels, exacerbating the severity of natural disasters, reducing nutrition levels in food² and increasing disease produced by unclean water. All present substantial risks for the health of humans, including Australians.

This policy paper by the Global Health Alliance Australia highlights evidence and case studies to show how climate and environmental change will affect human health in the Asia Pacific region. It provides proposals for how Australian Governments - Federal, State and Local - might respond to this challenge, arguing that Australia's aid, health and agricultural portfolios have an opportunity to develop policies that build resilience in our region to the impacts of climate change on human health. Such an approach would elevate Australia's standing in the region. The benefits are also closer to home, in terms of reduced health risks, and improved political, health and economic security for Australians.

Australia has longstanding commitments to the region, notably through its Official Development Assistance program, but also through a host of government and non-government initiatives. Australia has a major opportunity to build on these efforts by supporting its partner countries to develop their resilience to the health impacts of climate change. This paper identifies three areas in which climate change will have a major impact – on political, economic and health systems, on the risk of disease, and on vulnerable populations – before proposing potential policy responses.

The paper uses the concept of planetary health to show that environmental and human health cannot be separated. It also argues that climate and environmental change will affect the health of all citizens of the Asia Pacific region, including Australians. The health effects will be different across the region and Australians are also vulnerable to many climate-related health issues, including heat stress, air pollution, and cardiorespiratory illness caused by burning fossil fuels and fires.

Disease knows no borders. For example, the Nipah virus, a bat-borne disease that causes fatal infections in humans and pigs in South-East Asia is largely unknown in Australia today. But climate change and loss of natural habitat are pushing it closer to human populations. By 2050 Northern Australia will be at a far greater risk of this deadly virus becoming established domestically. In addition, if neighbouring health systems prove inadequate, pressure on Australia to provide assistance, even a safe haven for climate refugees, will grow.

The threat is great, but so is the opportunity. "Tackling climate change could be the greatest global health opportunity of the 21st century," argues the medical science journal, *The Lancet*.³ Models produced for a 2018 study published in *The Lancet Planetary Health* found that savings from health benefits alone would compensate for the costs of mitigating the effects of climate change in line with the Paris Agreement.⁴

The link between environmental and human health has not been at the centre of Australian policymaking. This paper hopes to redress that gap, and to inspire effective policy solutions to an issue of vast and growing significance to Australia, its region, and the world.

Recommendations for Australian Governments at a glance: summary

A nine-point plan

1. Publicly recognise the health impacts of climate change.
2. The priorities articulated by Health Ministers in the Pacific should drive Australia's investments there.
3. Equip the current and future workforce in Australia and across the Asia Pacific region for emerging threats to health from climate change.
4. Devise an implementation agenda for addressing the health impacts of climate change by:
 - a. Undertaking a benchmark National Health Survey in Australia which includes questions to understand the environmental drivers of poor health, including the impacts of climate change;
 - b. Including the impacts and responses to climate change as a Standing Item on the agendas of all the COAG Councils;
 - c. Requiring that all Cabinet Submissions contain a climate change impacts analysis;
 - d. Tasking the Productivity Commission to assess the cost-effectiveness of action on climate change and the associated co-benefits on our health;
 - e. Giving high priority to the impacts on health of climate change in the Department of Foreign Affairs and trade forthcoming climate change action strategy for the aid program, and implement this strategy urgently;
 - f. Reviewing and discussing the Climate and Health Alliance's Framework for a National Strategy (outlined in Annex One)
5. Support direct action in Australia through State and Local Government Area-based public health strategies.
6. Establish a multi-institutional Health and Climate Change Research Facility, based in rural Australia
7. Increase financial investment that would facilitate innovation and opportunities to develop effective health adaptations and low/zero-emissions initiatives – focusing on rural Australia and the Pacific.
8. Support proven solutions that address the impact of climate change on health.
9. Support policy initiatives that involve the community and citizens.

The detail and the thinking behind each of these proposals is elaborated in on pages 27-28.

The following chapter sets out the international and Australian context for policy-making in this field, examining climate change and health policy, and the intersection between the two.

The international and Australian policy context

Climate change: international responses

If global greenhouse gas emissions continue at their current rate, the Intergovernmental Panel on Climate Change predicts with a high degree of confidence that the Earth's average temperature is likely to reach 1.5C above pre-industrial levels between 2030 and 2052.⁵

International policymakers are increasingly aware of the need to respond to climate change. At the 2015 Paris United Nations Framework Convention on Climate Change Conference of the Parties 21, member states agreed on a common framework to address climate change and move towards sustainable carbon emissions. The agreement sought to coordinate national pathways towards overall emission reductions in order to ensure global temperatures do not rise above 2 degrees Celsius from pre-industrial levels.⁶

Climate change is already having significant effects on sea levels, biodiversity, extreme weather events, agricultural practices, and water and food management, among other fields. The CSIRO's State of the Climate 2018 report provides a detailed analysis of the impacts of climate change in Australia.⁷

Climate change: Australian responses

To a degree, domestic policy shifts in Australia have mirrored the decisions made in Paris. Consistent with the Paris Agreement, the Australian Government has pledged that by 2030 Australia will have reduced its domestic greenhouse emissions by 26 to 28 per cent over 2005 levels.⁸ Yet Australia's current efforts and promises to reduce the impacts of climate change are less than those of many comparable countries. It is also unclear whether they will enable Australia to reach the emissions target it has set for 2030.⁹

Nevertheless, both the Australian Government and Parliament contain strong advocates for vigorous and effective action on climate change. The 2017 Foreign Policy White Paper, published by the Department of Foreign Affairs and Trade (DFAT), identifies action on climate change as a long-term and strategic priority within the overall aid program.¹⁰ The White Paper acknowledges the impact of climate change on the economy, environment and security of Australia and the Asia Pacific region.

Australia also supports regional partners to improve their climate mitigation and adaptation strategies. In line with the Paris Agreement, Australia's Official Development Assistance – its overseas aid program – is investing \$1 billion in climate finance over five years (2015 to 2020) in order to help low and middle income countries reduce emissions and build resilience.

In addition, DFAT's Environmental and Social Safeguard Policy emphasises the value of environmental protection in order to maintain economic prosperity, to comply with legal requirements under multi-lateral environmental agreements and to contribute to the United Nations Sustainable Development Goals.¹¹ DFAT's Climate Change Action Strategy is awaiting release at the time of this report's publication.

Another initiative, the National Climate Resilience and Adaptation Strategy, released in 2015, outlines risk management approaches to climate change, including initiatives to build capacity for adaptation and resilience.¹² This strategy complements the work of the National Climate Change Adaptation Research Facility.

Australia has also committed to the Boe Declaration on Regional Security, recognising climate change as an existential threat to the lives, security and wellbeing of Pacific states.¹³ Climate change is now recognised as a central issue for the \$2 billion Australian Infrastructure Financing Facility for the Pacific.

Despite these initiatives, a significant opportunity remains to systematically integrate climate change considerations throughout Australia's aid portfolio, especially in terms of human health.

Australia's regional health priorities

The Department of Foreign Affairs and Trade leads the Australian Government's role in global health and international development. Australia's aid program seeks to reduce poverty and lift living standards through sustainable economic growth, infrastructure and trade activity, effective governance, health and education.

DFAT's Health for Development Strategy 2015-2020 identifies priority areas as health system strengthening, cross-border health threats, global health response capacity, access to clean water, sanitation and hygiene (WASH), access to maternal, newborn and child health and family planning and nutrition, and health innovation. The 2019-20 Budget costs the strategy at an estimated \$545.8 million.

Resilience to health security challenges is a pillar of DFAT's global health portfolio. Accordingly, the Indo-Pacific Centre for Health Security has been provided with \$300 million over five years (2017-2022) to strengthen regional capacity to protect against infectious disease outbreaks.

Climate change and human health: international responses

The impact of climate change on health is a growing priority in the global climate change agenda. A Special Report on Health and Climate Change, released at the 2018 meeting of United Nations Framework Convention on Climate Change, strongly emphasised the intersection between climate and human health and its place within the Sustainable Development Agenda. The report found that "climate change is the greatest health challenge of the 21st century, and threatens all aspects of the society in which we live. The severity of the impacts of climate change on human health are increasingly clear, and further delay in action will increase the risks".¹⁴

Similarly, the World Health Organization (WHO) finds that "although global warming may bring some localized benefits, such as fewer winter deaths in temperate climates and increased food production in certain areas, the overall health effects of a changing climate are likely to be overwhelmingly negative".¹⁵

For example, between 2030 and 2050 climate change will cause an additional 250,000 deaths per year from heat stress, malaria, malnutrition and diarrhea, according to some estimates.¹⁶ To summarise, "there is a widespread scientific consensus that the world's climate is changing [and] addressing these occurrences is a pressing challenge for public health".¹⁷

The World Health Organization categorises health risks from climate change as:

- Direct impacts arising from the heightened frequency and severity of extreme weather events;
- Environmentally mediated impacts, including air pollution, decreasing fresh water and changing patterns of disease; and
- Socially mediated impacts, including undernutrition, mental illness, population displacement and poverty, occurring from adverse pressure on human systems.¹⁸

Climate change and other forms of environmental change will worsen gaps in health systems, and combine problems across different sectors and geographies.¹⁹ It does not necessarily produce new disorders or disease, but instead amplifies existing health burdens and changes their geographic location. For this reason, climate change is a priority in the World Health Organization's Western Pacific Regional Organization White Paper, released in 2019.²⁰

Climate change and human health: Australia's response

To date, the sense of urgency gripping international policymakers about the intersection between climate change, environmental change and human health has not been reflected in Australian policymaking. While the Australian Government is taking initiatives in relation to climate change and global health as separate policy areas, its response to the impacts of climate change on human health across sectors has been more limited.

Australia has no unified national strategy to address this issue, and its policy and funding commitments provide limited recognition of its importance. For example, the Health for Development Strategy outlined above does not refer to climate change, let alone consider how large-scale investments and health programs in partner countries are affected by climate and environmental change.²¹

Similarly, the Australian Government Disaster and Climate Resilience Reference Group, an inter-governmental initiative encouraging the integration of policies related to climate resilience across Commonwealth decision-making and strategy, provides no guidance on how to identify and prioritise health risks in relation to the threat of climate change.²²

The 2016-2020 Strategic Plan of the Environmental Standing Committee, which includes representatives from Commonwealth, State, Territory and New Zealand health departments, makes significant reference to environmental health issues, including the intersection of climate change and health.²³ But that is an exception among recent Commonwealth initiatives. In addition, the National Climate Change Adaptation Research Facility supports decision makers to manage the risks of climate change.

On the one hand, Australian government expenditure does not suggest awareness of the intersection between climate change and global health. For example, the 2017-18 Official Development Assistance budget appears to contain no financial support for interventions and programs to help health systems adapt to climate change.²⁴ On the other hand, the recent commissioning of a scoping review that explores health adaptations to climate change in the South Pacific indicates that the Department of Foreign Affairs and Trade is paying more attention to this critical issue.²⁵

In summary, Australia's lack of a comprehensive global and public health response to address the impacts of climate change will significantly impede Australia's response to health risks in its region and at home. It will also undermine Australia's capacity to contribute towards the United Nations' Sustainable Development Agenda.

The UN 2030 Sustainable Development Goals

Australia is a signatory to the United Nations' 2030 Agenda for Sustainable Development, and in July 2018 delivered its first Voluntary National Review at the UN High-Level Political Forum on Sustainable Development. The Agenda, adopted by all 193 UN Member States in 2015, creates a shared blueprint for peace and prosperity for people and the planet.

At the heart of this agenda are 17 Sustainable Development Goals (SDGs)²⁶, which call for countries to act in a global partnership to address the most pressing challenges facing human beings. The goals recognise that ending poverty and other forms of deprivation must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve oceans and forests.

Critical to this paper are Sustainable Development Goals 3, 6 and 13: respectively, Good Health and Well-Being, Clean Water and Sanitation, and Climate Action. However, the proposals in this paper are relevant to all 17 of the Sustainable Development Goals.

A Framework for a National Strategy on Climate, Health and Well-being

The Climate and Health Alliance (CAHA) has developed a Framework for a National Strategy on Climate, Health and Well-being in Australia.²⁷ CAHA is a coalition of healthcare stakeholders with an interest in prompt policy action to respond to the threat of climate change on health. The Framework, yet to be adopted by the Australian Government, states that human health has "not yet been afforded sufficient priority in Australia's national mitigation and adaptation policy and strategic actions". See Annex 1 for further detail.

A key recommendation from the Commonwealth Government Senate Inquiry in May 2018 was that: "the Commonwealth Government develop a National Climate, Health and Well-being Plan based on the Framework for a National Strategy on Climate, Health and Well-being for Australia".²⁸

This paper seeks to build upon CAHA's Framework by examining Australia's role in promoting international development and global health, and how this work needs to recognise and respond to the threat and reality of climate change.



Figure: CAHA, Framework for a National Strategy on Climate, Health and Well-being for Australia²⁹

The concept of planetary health

The Rockefeller Foundation-Lancet Commission on Planetary Health, founded in 2015, introduced the concept of planetary health to a wider audience with its declaration that human health and the health of our planet are inextricably linked.³⁰



By unsustainably exploiting nature's resources, human civilisation has flourished but now risks substantial health effects from the degradation of nature's life support systems in the future. Health effects from changes to the environment [...] pose serious challenges to the global health gains of the past several decades and are likely to become increasingly dominant during the second half of this century and beyond.

Similarly, in a 2019 declaration for action on planetary health, the World Organisation of Family Doctors, a body representing 500,000 doctors in 131 countries, states: "Human health and wellbeing depend on the natural environment. Yet in the presence of continuing human population growth and widespread excessive consumption patterns, Earth's natural systems are undergoing fundamental shifts. We are not only depleting natural resources, but also generating massive amounts of waste and toxic pollutants, causing large-scale biodiversity loss, and changing our landscapes, the composition of our atmosphere, and the health of our oceans.

"As a result, despite the hard-won public health gains of the past decades, we are increasingly faced with degraded air quality, threatened food production, new infectious disease exposures, decreasing access to fresh water, new natural hazards, and negative consequences for our nutrition, mental health, and susceptibility to injury and disease."³¹

The declaration defines work in planetary health as aiming to develop and evaluate evidence-based solutions to safeguard an equitable, sustainable, and healthy world.

The following chapter sets out in detail three key emerging themes concerning the impact of climate change on human health.

Climate change and health: three emerging themes

Theme 1: How climate change threatens political, economic and health systems

Climate change places huge stress on political, economic and health systems. Rising sea levels, economic disruption and food and water scarcity are likely to displace populations, exacerbate competition over scarce resources and provoke civil conflict.³² All these effects will increase the risk of infectious and other diseases, threaten physical safety and mental health, and cause undue burden on national health systems. This is compounded by population pressures, placing increased demands on resources and increasing waste products.

These threats may be particularly acute for the states that are Australia's neighbours.³³ If regional health systems prove inadequate, the pressure on Australia to provide assistance and harbour climate refugees will be strong. That is why a planetary health lens is so important for understanding these complex patterns of environmental change.

The economic threat to Australia's neighbours from the health impacts of climate change is clear. But that threat is also potentially severe for Australia. The evidence of the fiscal costs of climate change on agricultural and labour productivity, infrastructure and the food system are well documented.³⁴ Although gaps remain in the measurement of the economic loss, some studies demonstrate the financial burden of foodborne, heat-related, and other illnesses.³⁵

Rising temperatures can cause an increase in enteric diseases, especially salmonellosis. Such food-borne diseases already have widespread impact on Australia's economy and population health. For example, one study estimated that there were 5.4 million cases of food-borne disease across Australia in 2000, costing the economy \$1.25 billion that year.³⁶ This impact could worsen under climate change scenarios.

Heat-related illnesses are also expected to rise as our climate continues to warm. Work absenteeism and under-performance caused by heat has been estimated to cost the Australian economy \$8.7 billion each year.³⁷

Climate change has made these extreme heat events more frequent, intense and prolonged, meaning these trends will continue over the coming decade.³⁸

Reducing and adapting to the impacts of climate change on health offers a clear economic imperative and benefit. In particular, preventative and early actions can generate substantial public and private savings over time. For example, one study finds that the transition to plant-based diets could reduce global mortality by 6-10%, lower food-related greenhouse gas emissions by 29-70% and result in an economic benefit of 1.21 trillion US dollars, as compared with a reference scenario in 2050.³⁹

To take another example, designing urban environments and energy production systems that lower air pollution will reduce the impacts of climate change and of associated ill health.⁴⁰ Models produced for a 2018 study published in *The Lancet Planetary Health* found that the health benefits are so large that they alone would compensate for the costs of climate mitigation that would meet the objectives of the 2015 Paris Agreement.⁴¹ Under some scenarios, the benefits were double the cost of initial mitigation. In other words, they would produce a net gain not only for health but for the economy.

It is also vital to support health systems to protect population health affected by climate variability and change. As a recent report on 'Climate-Smart Healthcare' from the World Bank and Health Care Without Harm notes, investing in low-carbon healthcare can strengthen health systems by increasing facilities' resilience to extreme weather events and other disasters, while also promoting approaches to adaptation. And in low-resource, energy-poor settings, powering healthcare with low-carbon solutions can also enhance access to care.⁴²

Australia can promote and finance climate-resilient programs that work to anticipate, manage and adapt to health risks. Health systems should be supported to embed principles of flexibility, strategic allocation of resources and robustness, and to collaborate with non-health sectors.⁴³ These changes will greatly enhance resilience to disease, disaster, sea level rise and other health-related climate effects.

Case Study

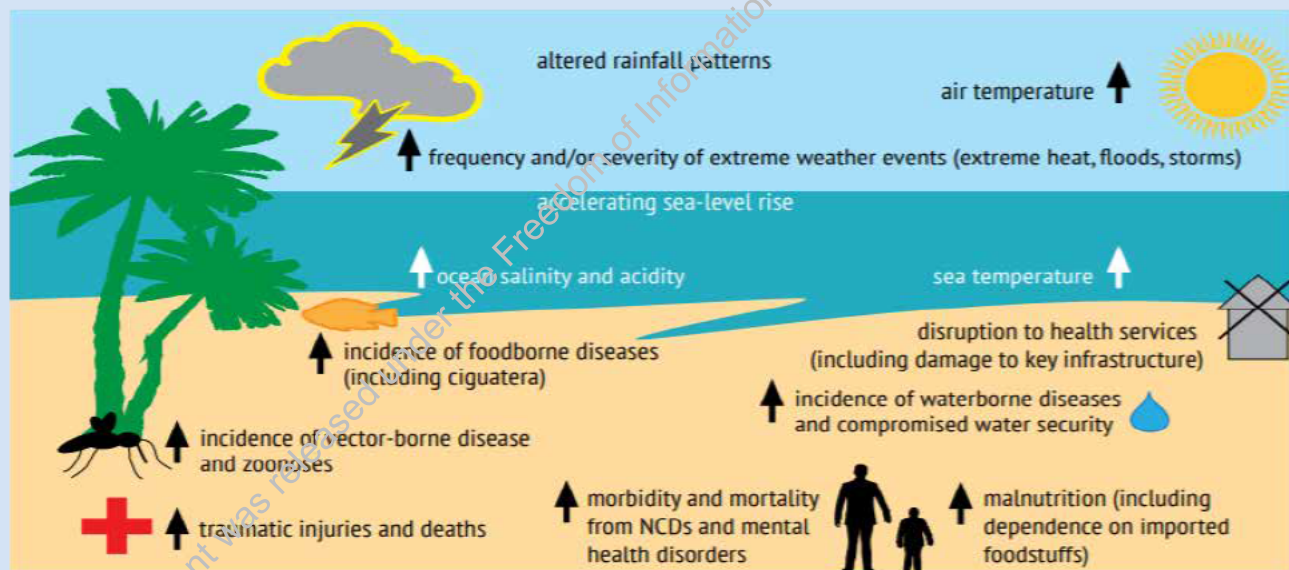
Diarrhoeal disease in Tuvalu

The climate-sensitive diseases of 13 Pacific Island Countries have been analysed extensively by the World Health Organization.⁴⁴ In collaboration with governments of those countries, this report outlines the health adaptation strategies for the range of diseases which will be exacerbated as the climate changes. In Tuvalu, the two diseases which are likely to increase the most due to a changing climate are diarrhoeal disease due to contaminated food and water, and respiratory disease. Altered rainfall patterns pose a major risk. During a drought in 2011 in Tuvalu, infants aged between 0-2 years were the most affected in a diarrhoea outbreak, due to decreased handwashing and low household water reserves⁴⁵.

While governments act to reduce carbon emissions and move to renewable sources of energy, countries like Australia can also reduce the risks of these climate-sensitive diseases in Tuvalu and other Pacific Island states through strategic investments in health adaptation. This will have benefits for the entire health system and population health.

Health adaptation strategies that have been identified by the government of Tuvalu and WHO to reduce climate-change related increases in diarrhoeal diseases include:

- Upgrading microbiological laboratory facilities and train staff to enhance water testing capacity;
- Enforcing the Food Safety Act;
- Investing in a sewerage treatment plant;
- Ensuring the proper implementation of the building code with respect to sanitation.



Pathways by which climate change may affect human health in the Pacific Islands⁴⁶

Adopting the principles of climate-smart healthcare advocated by the World Bank, Australia can align both universal healthcare and development goals by investing in low carbon healthcare, including in building design and construction, investing in renewable energy and energy efficiency, waste minimisation

and waste management, sustainable transport and water consumption, low carbon procurement for pharmaceuticals, medical devices, food, and other products, and invest in strategies to support health facilities withstand and their workforces to prepare for extreme weather events.⁴⁷

Theme 2: Climate change's impact on environmental health and the risk of disease

It is impossible to separate the health of the environment and the health of human beings. The first emerging theme concerns how climate change accelerates environmental change, which in turn will shape a range of environmental systems, human systems and human health outcomes. These include extreme weather events, water resources, food production and quality, air temperature and quality, and the risk of obesity. The health implications of changes in each of these areas are set out below.

Extreme weather events

Climate change is increasing the intensity, regularity, and duration of extreme weather events. Under a continually warming climate, sudden-onset natural disasters, such as floods hurricanes and bushfires, will disrupt human societies and lead to greater casualties.⁴⁸ At the same time, slow-onset hazards, such as droughts and the salinisation of water supplies, will threaten food and water security, with significant implications for human health and social stability in Australia and the Asia Pacific region, and around the world.⁴⁹

In particular, extreme weather events will affect physical and mental health, as well as access to health services, basic necessities, clean water and shelter, resulting in illness, injury and death.

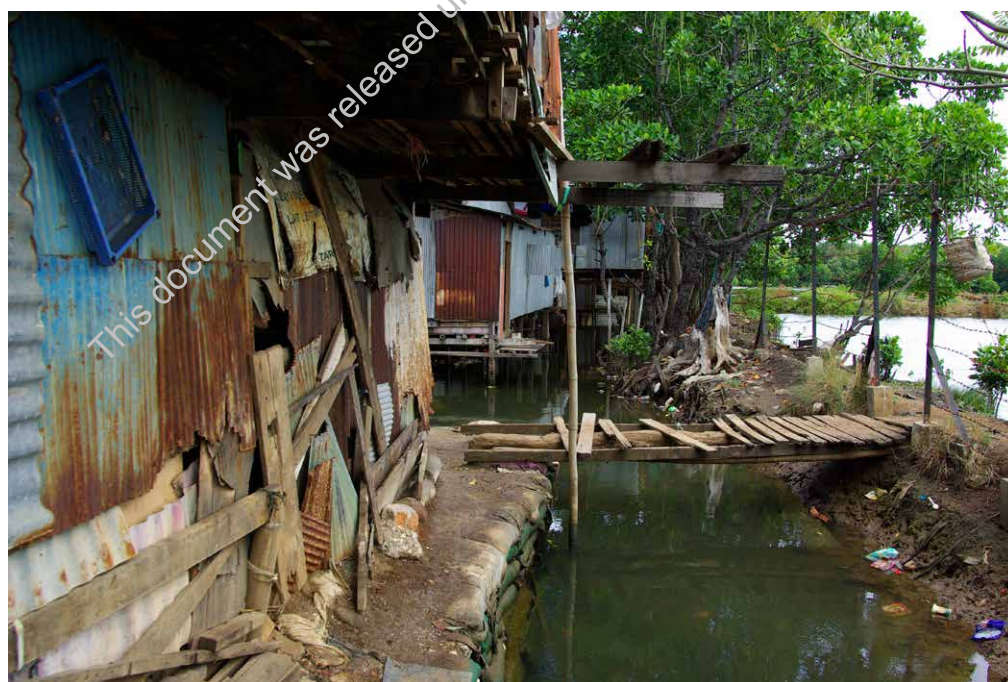
To take one example, heat waves are set to increase with climate change, with implications for human morbidity and mortality across different regions.⁵⁰ Climate change will affect both the ferocity of individual extreme events and the cascading impacts of multiple extreme events interacting with each other.

Water systems

The research literature shows that water, environment and disease interact in complex and powerful ways. Fluctuating rainfall patterns affect the relationship between water systems and human health. Flooding heightens disease transmission, while fresh water scarcity can lead to drought and famine, and exacerbate water salinity, threatening the health of crops and livestock.

In particular, unsafe drinking water caused both by flooding and by water scarcity compromises hygiene and increases the risk of water-borne diseases. These include the potentially fatal illnesses, diarrhoea, cholera, dysentery and typhoid. The Global Burden of Diseases, Injuries and Risk Factors Study estimates that in 2015 1.3 million people died from diarrhoeal diseases alone.⁵¹ New research also points to a relationship between flooding caused by climate change and gastroenteritis (cryptosporidiosis).⁵²

Climate change will exacerbate existing weaknesses in water systems. Sea level rises, extreme weather events and climatic variability will all impinge on the ability of key populations to withstand shocks and build resilient communities.



Parangloe Settlement, Makassar, Indonesia.

Case Study

Revitalising Informal Settlements and their Environments (RISE) and water sensitive approaches

RISE directly responds to widespread informal settlements and unsanitary water systems within the Asia Pacific region.⁵³ These communities are typically highly vulnerable to changes in climate, sea levels and water security. In partnership with over 25 institutions, Monash University is applying best practice and innovative technological methods to build an integrated and multi-sectoral adaptation intervention designed to improve the drainage, water supply, sanitation management (black and grey water) and flood protection of 24 study sites in Indonesia and Fiji.

Infrastructure interventions include water source diversity (rainwater tanks and harvesting), black and grey water treatment and reuse facilities and urban agricultural development in order to improve community climate-resilience.

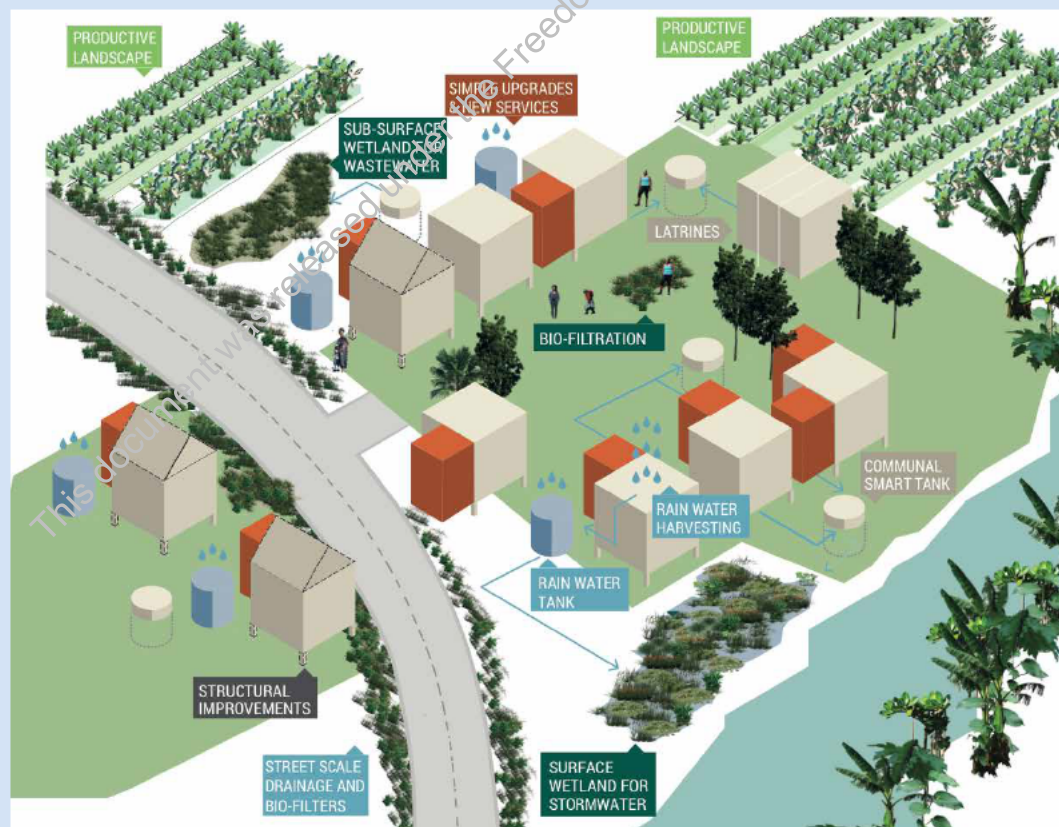
Communal septic tanks, constructed wetlands, pressure sewer systems, biofilters and latrines are just some of the innovative technologies.

This 'water-sensitive' approach offers a decentralised, nature-based and low emissions model that can be used alongside traditional large-scale infrastructure, water treatment and housing developments.

Whilst still ongoing, there are early signs that the study will confirm the program hypothesis that reductions in pathogens located in the water and soil of these communities will reduce pathogen load within humans, in turn improving planetary and human health outcomes. This project is being implemented as a randomized control trial (RCT) in order to meet the highest standards of evidence generation.

RISE is a collaboration of more than 200 people, working at 25 institutions across six countries. The program is led by the Monash Sustainable Development Institute (MSDI) with its expertise in convening transformative, interdisciplinary research, education and enterprise.

For more information see: www.rise-program.org

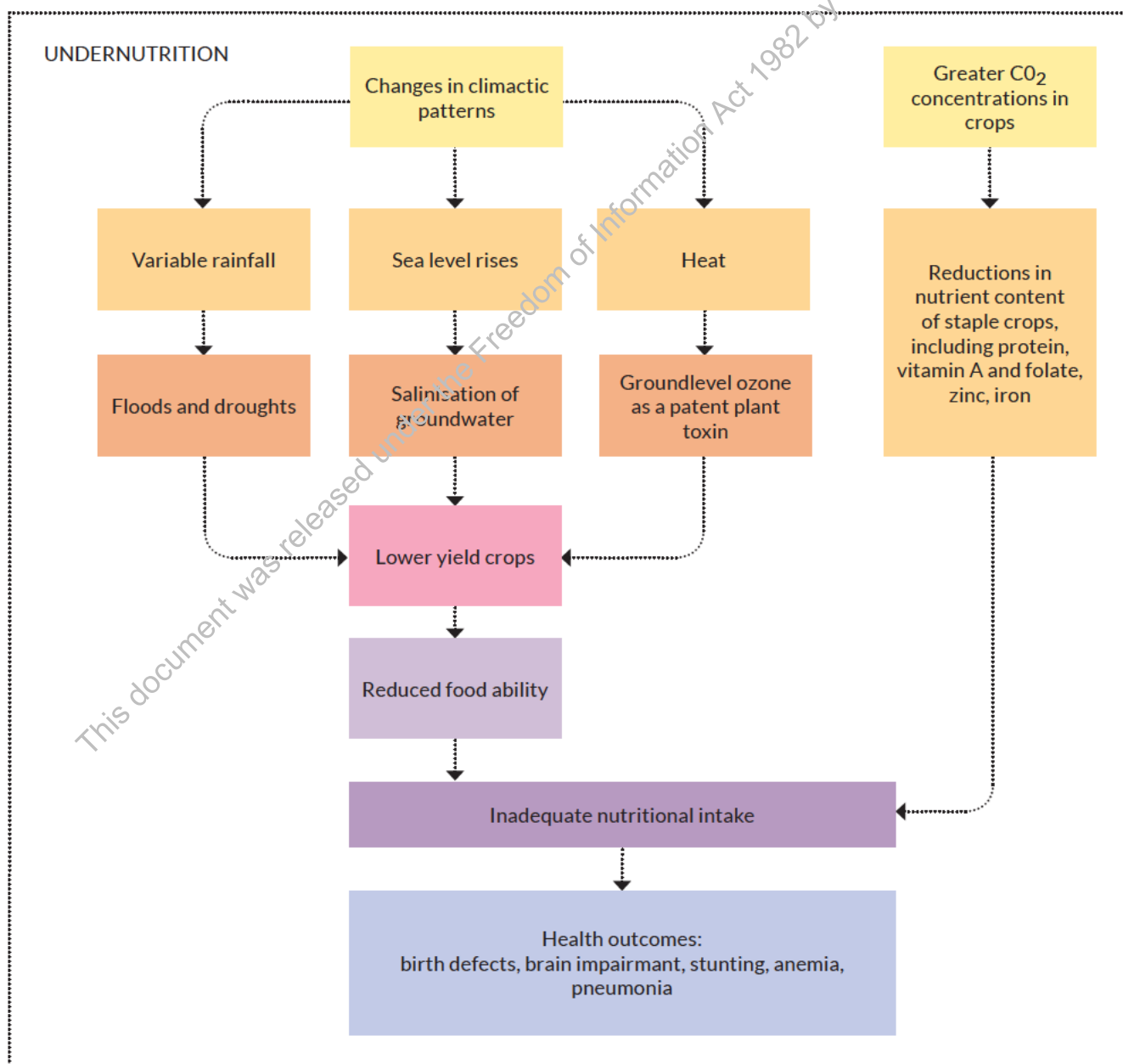


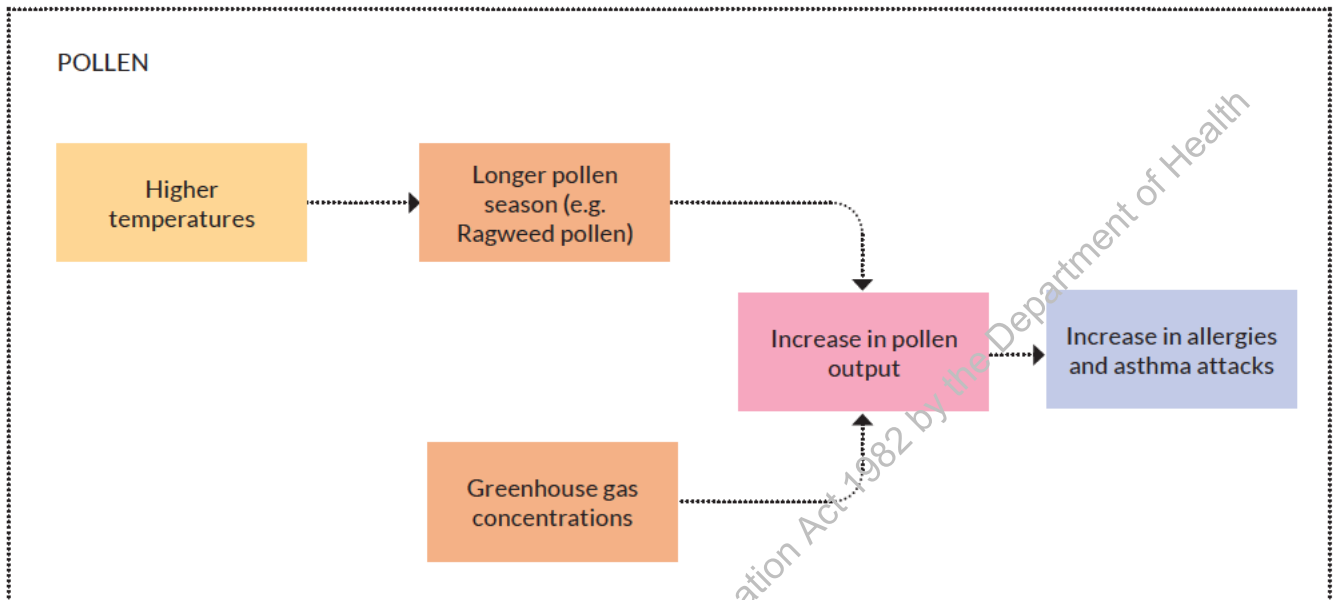
RISE Diagrammatic Model

Undernutrition

Around the world, yields from crops such as maize, wheat, rice and soybeans are expected to drop by as much as 10 per cent between 2000 and 2050.⁵⁴ A key cause of the lower yields is global warming, which is not just raising temperatures but is also changing climatic patterns. A changed climate is producing variable rainfall, which among other impacts brings rising sea levels, the extremes of flood and drought, the salinisation of groundwater, greater levels of ground ozone, and, of course, more heat. All these changes reduce crop yields and the availability of food in many countries.

For example, ozone toxicity has been shown to substantially reduce rice production in South and Southeast Asia, as well as in China, with significant implications for the supplies of staple food and nutrition for millions of people. Higher Co2 concentrations in crops are also stripping protein, vitamin A, folate, zinc and iron from the nutrient content of staple crops. The long-term health impacts among children, for example, include higher levels of infection, mortality, anaemia, stunting, lowered cognitive functioning and reduced adult income.⁵⁵





How temperature rise increases the spread of disease

Rises in global temperatures will alter both the geographic distribution – latitude and altitude – and the seasonality of certain infectious diseases. In particular, climate change will radically widen the livable range for mosquitoes and thus exacerbate the risk and burden of the viruses they transmit. These include dengue, chikungunya and Zika. By 2100, about one billion people will be newly at risk of exposure to the Aedes virus.⁵⁶ This will threaten the core tenets of the global health and security regime.

In Australia and other countries, higher temperatures also prolong the pollen season, and the itchy eyes, noses and throats caused by ragweed and other pollens. A longer pollen season and greater concentrations of greenhouse gas in the atmosphere are directly responsible for increases in allergies and asthma attacks.

Case Study

World Mosquito Program

The World Mosquito Program seeks to reduce the burden of mosquito-borne disease through use of technological innovation. Led by Monash University in Melbourne, this program involves the introduction of natural Wolbachia bacteria into Aedes aegypti mosquito populations to reduce their ability to transmit these critical and deadly viruses. Dengue fever, for example, is estimated to be responsible for 58.4 million cases and 9,110 deaths in 2013.⁵⁷

The controlled release of Wolbachia carrying mosquitoes within critical geographical areas builds the prevalence of the bacteria in the population over time, reducing the risk of disease for the human population.⁵⁸ Such methods do not pose a risk to natural ecosystems or public health.

This presents a cost-effective, long-term and natural approach to reducing viral load and associated mortality within communities, and has now being rolled out in 12 countries. It is complementary to existing vector control strategies.

Several control trials, combined with significant observational data, of the WMP method across Indonesia, Brazil and Colombia are demonstrating the efficacy and effectiveness of the WMP's self-sustaining, natural approach.

Case Study

Nipah Virus and Q Fever: two dangerous pathogens that climate change is exposing to humans

Nipah virus is a bat-borne virus which causes disease in pigs, horses and potentially other domestic animals. The disease can be fatal, particularly in humans. First documented in Malaysia in 1998, it has not been seen in Australia, but fruit bats in Southeast Asia and Timor Leste, have been shown to have antibodies to the virus. Nipah virus is very closely related to Hendra virus, which is endemic in Australia.

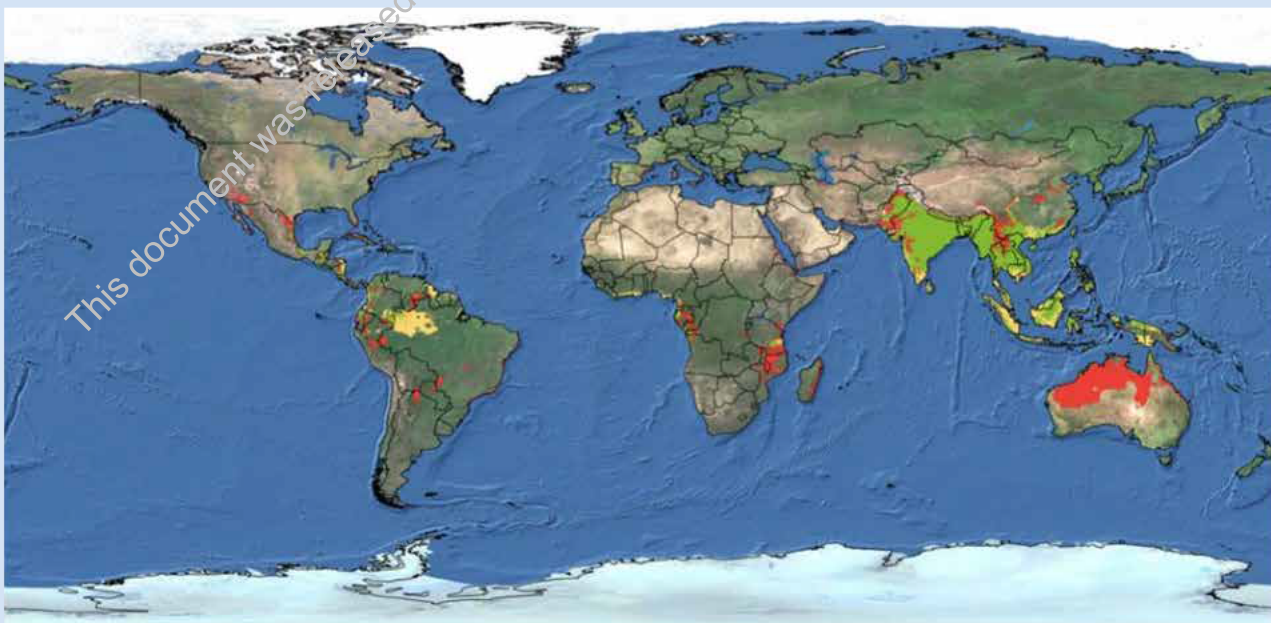
Fruit bats respond to loss of habitat caused by deforestation and forest fires, and to droughts that may be linked to climate change, by moving into human areas in search of food and water. EcoHealth Alliance, a global organisation that researches the links between environmental, human and animal health, modelled predictions of Nipah virus prevalence in 2050. It did so by modeling factors that describe the current range of the virus with an analysis of underlying risk factors based on a conservative climate change scenario for 2050 developed by the Intergovernmental Panel on Climate Change.⁵⁹

The map shows areas of increased risk in red and decreased risk in green for the year 2050. It indicates that Northern Australia will be increasingly at-risk of this deadly virus becoming established.

An important underlying assumption is the presence of a species of bat that can serve as a host of the virus. At present two large fruit bat species that carry the virus in Asia are closely related to fruit bats in Australia. The introduction of the Nipah virus would present substantial risks to humans, pigs and horses.

Climate change is also predicted to increase the spillover of Q fever from animals to humans in Australia. Endemic Q fever has long been recognised in north Queensland, with north Queensland previously acknowledged to have the highest rate of notification in Australia. More than half of Australian cases occur in Queensland, where the incidence rate is around 3.5 cases per 100,000 persons every year.⁶⁰

Q fever is carried by a variety of wild and domesticated animals, including wallabies, kangaroos and bandicoots. As climate change degrades their habitat in Northern Queensland, these animals are pushing into urban and semi-urban areas in search of grazing land, such as golf courses and large residential blocks around Townsville. Their presence increases the risk of transmission of this highly infectious pathogen, particularly amongst middle aged and elderly people. Symptoms can include high fevers, chills, severe headache, muscle and joint pain, and extreme fatigue. Chronic complications include granulomatous hepatitis, chronic fatigue syndrome, osteomyelitis and endocarditis.



*Future Climate Change Scenario for the distribution of Nipah virus.
Year 2050, optimistic scenario (B2). Red depicts new potential areas for virus spread.*

How temperature rise increases heat stress

In January 2019 Australia experienced the hottest month in its history, with mean temperatures exceeding 30 degrees for the first time. In some places unprecedented maximum temperatures fell just short of 50 degrees. Around the world, by 2100 three in four people will be exposed to heat waves extreme enough to cause human mortality, according to a study published in *Nature* in 2017.⁶¹

At present fewer than one in three people experience these heat conditions. Heat waves, defined by the Australian Bureau of Meteorology as three or more days of unusually high maximum and minimum temperatures in any one area, lead to heat stress and dehydration.⁶² These in turn exacerbate asthma, diabetes, chronic obstructive pulmonary disease and other health conditions. In extreme cases, and especially among older people, heat stroke can cause brain and nerve damage, and kidney and heart failure.⁶³ Peer-reviewed research places the European death toll from the 2003 heatwave at more than 70,000.⁶⁴ When it's hot, all of us are more sedentary, with damaging impacts on our health and capacity to lead productive lives.⁶⁵

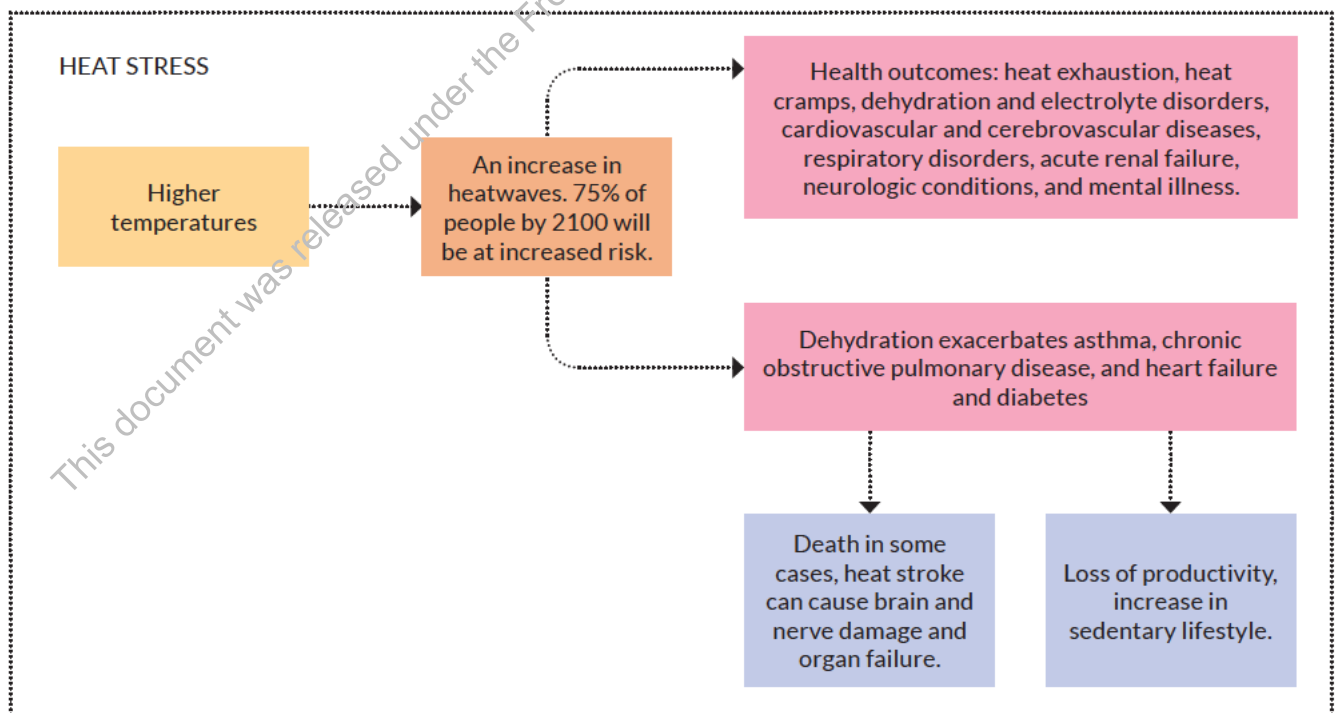
Case Study

Heat: a known and unknown killer

Most Australians know that 173 people died in the Black Saturday bushfires of February, 2009.

What is less well known is that during the heatwave, which included three days over 43 degrees celsius, there were 374 further deaths above a normal week, likely from heat stroke.⁶⁶ There were also more than 1000 emergency callouts, blackouts, and mass public transport disruptions.

By 2050 an extreme heat event in an Australian capital city could kill more than 1000 people within a few days, according to a 2011 PwC report for the Australian Government.⁶⁷ Heatwaves are also associated with mental illness, foodborne disease and violence. They constitute a significant public health concern that is exacerbated by climate change. The direct financial loss from the 2009 Victorian heat wave is estimated at \$800 million AUD.⁶⁸

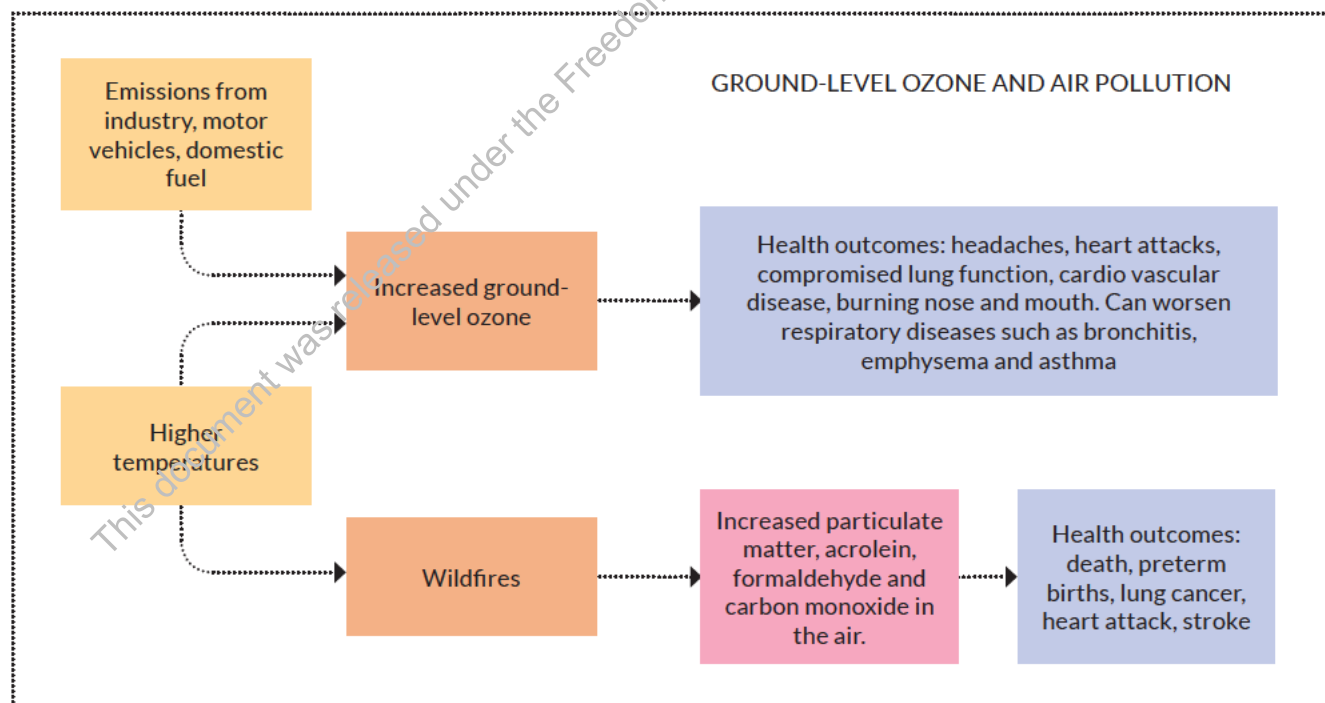


How climate change affects air quality and levels of respiratory disease

Particulate matter and greenhouse gases, both produced by carbon-based energy sources, exacerbate air pollution and increase the level of respiratory disease. Every year, about 4.2 million people die from ambient air pollution, and 3.8 million die from household air pollution, according to the World Health Organisation. The Global Burden of Disease Study ranks exposure to air pollution as the fourth highest risk factor for death in the world, accounting for 5.5 million deaths in 2013.⁶⁹ As well as respiratory disease, air pollution can cause pre-term births, lung cancer, heart attack and stroke.

Particulate matter, formaldehyde and carbon monoxide are all by-products of wildfires, which of course burn more often when temperatures rise.

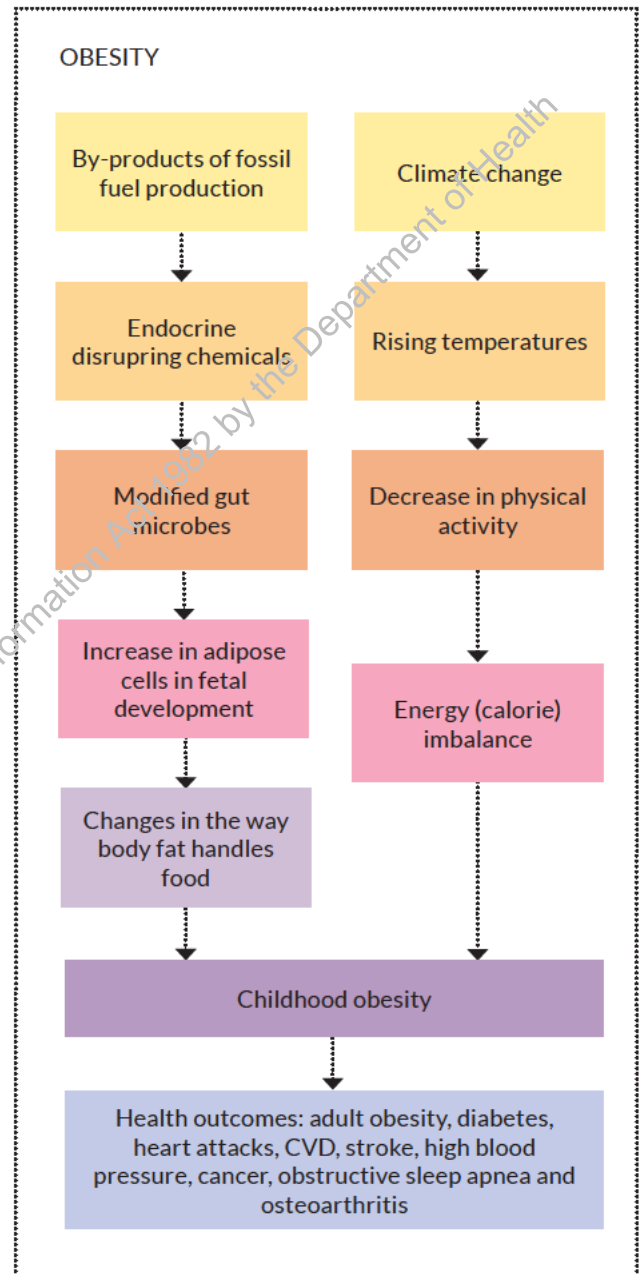
Both higher temperatures and carbon emissions also increase ground-level ozone, a gas that is essential in the upper atmosphere but should never be breathed by human beings at ground level. Headaches, respiratory diseases and heart attacks are just some of the consequences.



The link between fossil fuel production and obesity

Rising temperatures contribute to reduced physical activity, leading to overweight adults and children. Some by-products of fossil fuels also produce endocrine-disrupting chemicals that modify the microbial content of the gut. When this occurs in women, especially during pregnancy, this can change the precursors of adipocytes (fat-storing cells) during fetal development.⁷⁰

After birth these cells increase in number but also handle fat differently, increasing the likelihood of obesity. Obesity is a significant cause of diabetes, high blood pressure, osteoarthritis, heart attack, cancer and stroke, among other illnesses.⁷¹



Theme 3: How climate change threatens vulnerable populations

Although all humans are likely to become less resilient over time to the adverse impacts of climate change on health, some population groups are particularly vulnerable.⁷²

These include women, the young, the elderly, people with disabilities, indigenous and rural communities, all discussed further below. Climate change will exacerbate existing health system inequities, since human resilience is shaped by location, physical condition, social status, poverty, control over resources, and relationship to land- and food-producing systems.⁷³

Women

Climate change disproportionately affects the health of women.⁷⁴ Women frequently lack access to financial and political resources, including community decision-making processes, that make populations more resilient and are often more vulnerable to environmental change. A study of 141 countries shows that women are at a higher risk of death from natural disasters because women are more likely to be inside houses during emergencies and are more likely to be with their children.⁷⁵ For example, between 70 and 80 per cent of the people who died in the 2004 Boxing Day Tsunami were women.⁷⁶

There is strong evidence that education, along with economic and social participation and empowerment, strengthen women's resilience to climate change.⁷⁷

There is also evidence that advancing women's reproductive rights improves health outcomes not only for women but for entire communities, reducing poverty and allowing for sustainable population growth.⁷⁸

Women's vital role in influencing societal responses to climate change is not always recognised, or reflected in policy and programming. According to a Department of Foreign Affairs and Trade evaluation, gender indicators were only included in around one third of climate-related investments as part of Official Development Assistance.⁷⁹

Women and girls should be empowered to participate through the provision of adequate resources and by addressing political, financial, social, and educational barriers. Enabling women as active participants will improve efforts to develop climate-adaptive programs relating to health, energy, water, trade and agriculture.

Case Study

Marie Stopes Timor Leste–Blue Ventures

Marie Stopes Timor Leste works with Blue Ventures – a marine conservation organisation dedicated to working in a holistic way with coastal communities – to provide communities with improved reproductive choice services, including access to contraception.

Among other activities, Blue Ventures facilitate men's groups on the island, which comprise mostly of local fisherman. MSTL has had long-term engagement with these groups using gender transformative approaches (GTA). GTA goes above and beyond a standard family planning education session, as it explores existing power dynamics, structures and social norms that are the root causes of gender inequality. MSTL has a cohort of educators trained in GTA, and considers it an important element of MSTL programming in response to the high prevalence of gender based violence and the powerful role men play in a woman's ability to exercise reproductive rights and access family planning in Timor-Leste.

The integrated programming – which focused on health, conservation, alternative livelihoods, and empowering women and communities – has seen many benefits that would not have been possible with siloed sector-specific projects. Women and men are healthier, better able to take care of their families, and have governance and livelihoods systems in place that will make them more resilient to shocks and stresses resulting from phenomenon such as climate change.

Marie Stopes International Australia is a proud member of the Global Health Alliance Australia.



Marie Stopes Timor Leste educator, Helio uses a gender transformative approach when conducting an information session on Arturo Island. Photo: MSTL/Mariano da Silva Tome.

Older people

Older people are one of the most at-risk population groups from climate-related health impacts. As humans grow older and less mobile, and as some older people's access to resources shrinks after their working years, they become less resilient to climate-related changes such as extreme weather, vector-borne diseases, reduced access to fresh water and declining nutrition from agriculture.⁸⁰ Natural disasters and other sudden events disproportionately affect older people. Three-quarters of Hurricane Katrina-related deaths were of people older than 60, and half were of people older than 75.⁸¹

In addition, slow-onset health impacts that accumulate over the course of a lifetime can profoundly affect the elderly. For example, early exposure to neurotoxins and air pollutants may contribute to the occurrence of neurodegeneration, cardiovascular disease, diabetes and other conditions later in life.⁸² The health of the elderly is also at risk from pre-existing conditions, psychological susceptibility and social vulnerability.⁸³

Young people

The health of children and adolescents is particularly vulnerable to the impact of climate change. Children suffer as much as 98 per cent of the global disease burden associated with climate change, according to a study by Sheffield and Landrigan.⁸⁴ Huge variation was witnessed on the basis of geography and socioeconomic status, and included a wide variety of climate-related health conditions, including vector-borne disease, exposure to toxic chemicals, and morbidity and mortality associated with extreme events. These health impacts are expected to worsen over time, with an additional 25 million children predicted to be malnourished by 2050.⁸⁵ The same pattern can be seen with infectious and respiratory diseases and with chronic illness. Young people are also vulnerable to exposure to stress and trauma associated with climate change, affecting their brain development and mental health.



Case Study

The impact of extreme weather on pregnancy and early childhood development

Extreme weather events, including floods, bushfires, droughts, longer and hotter heatwaves, ice storms and cyclones, are linked to climate change and are increasing in frequency and intensity in Australia and worldwide.

People who live through these events can have direct experiences of being trapped or injured, witnessing other people being harmed, and seeing their homes and livelihoods damaged. They can be separated from family members, have to live in temporary housing, lack access to essential services and utilities, and lose household goods and other assets. Many people report intense fear during the event, and some develop post-traumatic stress and other mental health problems in the medium to long term.⁸⁶

Growing evidence from studies of women who have experienced an extreme weather event while they were pregnant suggests that there are also adverse intergenerational consequences. In 1998 a severe ice storm in Quebec, Canada, involved prolonged disruption to living circumstances and employment opportunities. Women who were pregnant during the ice storm and the children who were born after it have been studied intensively since then.⁸⁷

Children of women who experienced objectively-assessed moderate to severe storm-related harm, in particular during the first and second trimesters of pregnancy, had lower cognitive capacity (equivalent to at least 14 points on an IQ scale), smaller vocabularies and less imaginative play when they were two. The deficits in learning capabilities are still apparent in the long term and there are additional consequences for body composition, including obesity, and mental health problems during adolescence.

These effects on children's cognitive and language development have been replicated in studies of women who experienced extreme weather events, including floods in Iowa City and in Brisbane, and human-made and natural disasters.⁸⁸

The presumed mechanism is stress hormones crossing the placenta and producing adverse effects on the foetus's neurocognitive development.

People with disabilities

People living with disabilities are uniquely affected by climate change, although the health implications vary widely depending on the type of communication, cognitive or physical disability.⁸⁹ In extreme weather events, people with disabilities will have less access to essential, sometimes life-preserving, medications and equipment, and to health services and appropriate information.

Extreme weather events exacerbate existing inadequacies in wheelchair-accessible transportation, supplies of prescription medicine, and staff trained in disability needs. As a result, people with disabilities were nearly two and a half times more likely to have been injured during Tropical Cyclone Pam in 2015.⁹⁰ People with disabilities often have lower than average incomes, reducing their likelihood of owning air conditioners and increasing their risk of heat stroke during heat waves.

Case Study

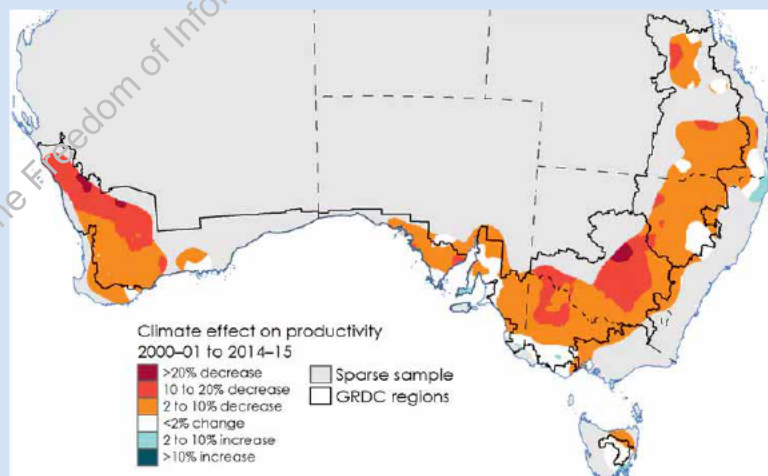
Rural Australia and Victoria

Rural communities are acutely impacted by the health effects of climate change. For example, a 2017 report from the Climate Council highlights that climate change is likely to worsen the systemic disadvantages experienced by rural and regional communities⁹¹

Extreme weather events, including bushfires, droughts and floods disproportionately affects rural industries and communities in Australia. Agriculture remains the economic backbone of many rural communities, yet is increasingly under stress from climate events. A study by the Australian Bureau of Agricultural and Resource Economics and Sciences shows the decreased agricultural productivity in Southern Australia (see figure right).⁹² This can result in significant mental health issues, where loss of income and rising debt can heighten rates of depression, anxiety, substance use and suicide.⁹³

Rural areas already have higher rates of hospitalisations for asthma and chronic obstructive pulmonary diseases, which is expected to be exacerbated by warmer temperatures and increases in pollens and pollutants such as bushfire smoke.

Heatwaves have a large impact on the economic outcomes for rural areas. According to the Victorian Department of Environment, Land, Water and Planning, the construction and agriculture industries are facing the largest impacts



Key southwestern and southeastern agricultural zones have been especially impacted by climate change.

from extreme heat events.⁹⁴ For example, the Indi electorate in Victoria depends heavily on the economic and employment activity arising from agricultural, forestry and key neighbouring industries such as the ski and alpine sector.⁹⁵ The higher number of extreme heat events will bring significant detrimental impacts.

Rural Australia, particularly rural Victoria, is already suffering health, environmental and economic effects from climate change. If action is not taken, rural areas will continue to carry a disproportionate burden from climate change.

Impacts on Indigenous Peoples

Climate change is a significant and emerging threat to human health. However, this threat is even more prevalent for vulnerable populations including Indigenous peoples.⁹⁶ Globally, many Indigenous populations face unique sensitivities to climate change, associated with close relationships and cultural connections to the land, sea, and natural resources,⁹⁷ and climate change also poses a threat to the health and livelihoods of Indigenous peoples both here in Australia and around the world.

Many Indigenous populations reside in regions undergoing rapid climate change, such as low lying coastal, and rural and remote areas. It is estimated that there are approximately 370 million Indigenous people globally and at least 5000 distinct groups, with little study having been undertaken with regards to the health impacts of climate change.⁹⁸ In Australia, Aboriginal and Torres Strait Islander people experience vulnerability to climate change like many other Indigenous populations.⁹⁹ Temperature increases will reduce food supplies in remote parts of Australia, and rising sea levels will force people off their land in coastal areas.¹⁰⁰ This places Indigenous Australians at an extremely high level of vulnerability in terms of climate change and may result in increased mental health and social stressors.¹⁰¹ An assessment and associated strategy to reduce the impacts of climate change on the health of Indigenous Australians is urgently required.

Australia should conduct a health survey that explores the environmental drivers of poor health and wellness for Indigenous Australians and other non-Indigenous residents of Australia. The design and implementation of the survey should be a co-designed and managed exercise that centres Indigenous knowledge of Australian environment, Indigenous methodologies and processes of community engagement.

Indigenous populations in Australia have the longest living culture on the planet and thus have experienced and successfully managed several changes in global climate.¹⁰² A recent Intergovernmental Panel on Climate Change (IPCC) report explicitly discusses the benefits of Indigenous people's knowledge of the land in creating robust climate change mitigation strategies and actions, with inclusive engagement a critical success factor in rapid positive climate action.



Image: Torres Strait Climate Change Strategy, 2014–2018

By strengthening the capacity for climate change relation-action, Indigenous peoples and local communities can support the implementation of ambitious strategies that are needed to limit global warming to 1.5°C.¹⁰³ Some work has already been done in the Australian context.

For example, the Torres Strait Climate Strategy Action Plan aims at building the adaptive capacity of the individuals, communities and ecosystems in the area to counter the community's vulnerabilities to these impacts.¹⁰⁴ The action plan focusses on fostering cultural and traditional knowledge, protecting the local environment and ecosystems, adapting the existing infrastructure and settlements, to facilitate community adaption, and improve communication and capacity building. Torres Strait communities possess many skills that will assist in confronting the challenges ahead, including a strong connection to and extensive knowledge of the environment, good community cohesion and leadership, and a healthy and intact natural environment.

Policy Considerations for Australian Governments

The Australian Federal Government could design and implement a whole-of-government strategy that enables Australia to respond to the health impacts of climate change, both in Australia and the Asia Pacific region.

The Climate and Health Alliance has recommended that the Australian Government design and implement a unified National Strategy on Climate, Health and Well-being. The Global Health Alliance supports this proposal, and suggests the Australian Government consider and extend this framework by introducing a core component dedicated to international development and global health. This strategy should address Australia's role in building capabilities within the Asia Pacific region to adapt to the impacts of climate change.

Australia's Official Development Assistance program has an opportunity to develop a strategic approach to global health and climate change by elevating and linking these policy areas within the agenda, narrative and planning of the Department of Foreign Affairs and Trade and between other Australian Government departments, such as Health, Defence, Agriculture, ACIAR and Home Affairs.

These departments and Australian non-government organisations already have internationally recognised capabilities, relationships and technical skills essential for addressing climate change's impact on health. However, a robust framework is needed to guide the partnerships, investments and programmatic activities of Australian Government departments and other organisations and to ensure they are effective. Such a strategy, properly implemented, could establish Australia as a leader in the field of climate change, environmental and human health.

Federal Departments could also recognise and partner with State, Territory and Local Government Areas to implement initiatives that are domestically-focused, and with State-based jurisdictions with international strategies and capacity, such as the Department of Health and Human Services through the Victorian International Health Strategy.¹⁰⁵

It should be noted that some work on climate change and health policy is being progressed by some states such as Queensland,¹⁰⁶ NSW¹⁰⁷ and Tasmania.¹⁰⁸

Finally, the strategy would address the relationships between climate change, and human, animal and environmental health set out in United Nations Sustainable Development Goals 3 (Good Health and Wellbeing), 6 (Clean Water and Sanitation) and 13 (Climate Action).

Key recommendations: a nine-point plan

1. Publicly recognise the health impacts of climate change.

Climate change is already affecting health in Australia and across the Asia Pacific region, with increased burdens for all national health systems. WHO Regional Director for the Western Pacific, Dr Kasai Takeshi, has prioritised climate change and the environment as one of the three highest priorities for his five-year term which began this year. Governments throughout the region, at all levels, have a leadership role to play in publicly recognising, and responding, to these impacts.

2. The priorities articulated by Health Ministers in the Pacific should drive Australia's investments there:

- a. draw on the \$2 billion Australian Infrastructure Financing Facility for the Pacific to address serious climate-sensitive health challenges across the region.
- b. respond to the work undertaken by 13 Pacific Health Ministers which identifies the top 10 climate-sensitive health issues and the related investments required to address them (see Reference 44)
- c. ensure that Australian support for disaster recovery takes a "build back better"¹⁰⁹ approach, reducing vulnerability and building resilience

3. Equip the current and future workforce in Australia and across the Asia Pacific region for emerging threats to health from climate change.

- a. Ensure training programs for doctors, nurses and other health professionals include preparing for, and adapting to, health impacts of climate change. Because of the urgent need for action, investment in continuing professional development for the existing workforce is also required.
- b. Beyond the formal health system, there is a need for capacity development in related sectors including water, sanitation, housing, transport and agriculture.

4. Devise an implementation agenda for addressing the health impacts of climate change.

Effective strategy requires careful implementation. To ensure the success of its overall strategy, the Australia Government should:

- a. Undertake a benchmark National Health Survey in Australia which includes questions to understand the environmental drivers of poor health including the impacts of climate change
- b. Include the impacts and responses to climate change as a Standing Item on the agendas of all the COAG Councils;
- c. Require that all Cabinet Submissions contain a climate change impacts analysis
- d. Task the Productivity Commission to assess the cost-effectiveness of action on climate change and the associated co-benefits for health.
- e. Give high priority to the impacts on health of climate change in the Department of Foreign Affairs and Trade's forthcoming climate change action strategy for the aid program, and implement this strategy urgently
- f. Review and discuss the Climate and Health Alliance's Framework for a National Strategy (outlined in Annex One)

5. Support direct action in Australia through State and Local Government Area-based public health strategies.

This could also serve as a model for lower-middle income countries with multiple levels of governance.

- a. At the State and Territory level include climate change adaptation and mitigation measures in the relevant overarching public health plans, such as the Victorian Public Health and Well-being Plan
- b. Require that the Chief Health Officers (CHO) in each State and Territory report on progress against climate change related strategies in their regular CHO reports
- c. Inclusion of a climate and health priority within Council, Shire or Local Government Area public health and well-being plans that corresponds to the relevant overarching State-specific public health plan. There is already enormous potential and capacity to deliver actual adaptation and mitigation initiatives if associated funding is made available. Recent examples of local council-based initiatives include:
 - a multi-partner consortium which pooled its energy procurement requirements to enable the establishment of a new wind farm in rural Victoria;¹¹⁰ and
 - facilitating free access for those that can't afford it to public swimming pools on excessively hot days.

6. **Establish a multi-institutional Health and Climate Change Research Facility, based in rural Australia.** The establishment of a facility which develops policy-relevant research in partnership with those industry sectors most affected such as agriculture, would greatly assist policy makers in determining which interventions will assist those most directly impacted by climate change. This work could utilise the skills of indigenous peoples and colleagues in the Pacific who are already experiencing the impacts of climate variability on their health and livelihoods.
7. **Increase financial investment to facilitate innovation and opportunities to develop effective health adaptations and low/zero-emissions initiatives – focusing on rural Australia and the Pacific.** The Australian Federal Government can shape the regional response to climate change in a range of ways: by mobilising public sector funding, and encouraging private sector investment from the finance, mining and manufacturing sectors; by removing barriers to investment; and by ensuring the effectiveness of existing Australian investments in producing strong mitigation and adaptation outcomes.¹¹¹ Effective responses to health problems exacerbated by climate change will strengthen community resilience, improve health outcomes and generate financial benefits regardless of climate outcomes.
8. **Support proven solutions that address the impact of climate change on health.** Significant activities responding to the health risks posed by climate change in Australia and the Asia Pacific region are already underway. For example, the Revitalising Informal Settlements and their Environments (RISE) program is creating effective water sensitive infrastructure in Indonesia and Fiji. RISE and other Australian-led projects, such as the World Mosquito Program, require further policy support, investment and incorporation within an over-arching Federal Government policy framework to address the impact of climate change on health. Such support will enable Global Health Alliance Australia members to continue to develop effective multi-sectoral public health and development programs that address the environmental determinants of health in Australia and partner countries.

9. **Support policy initiatives that involve the community and citizens.** Policy and programs that enable community groups and citizens to respond and adapt to climate change have great value and should address the needs of the most vulnerable to climate change. For example, Marie Stopes Timor Leste and Blue Ventures' gender transformative approach in Timor Leste. Effective solutions cannot be entirely centrally planned and top-down. It is important that individuals and communities have not only the opportunity but the responsibility to make informed decisions. Australian governments that work in partnership with countries in the Asia Pacific region - which includes many city councils and shires (LGAs) - and organisations in Australia and the Asia-Pacific can aid community decision-making by supporting long-term skills development, the integration of a focus on climate change into school curricula and enabling public access to accurate information on climate change.

If implemented effectively, these recommendations will:

- Build Australia's capacity to play its part in achieving the United Nations' 2030 Sustainable Development Agenda, and position Australia as an international leader of health-related climate adaptations;
- Strengthen community and individual resilience to climate change, in turn leading to positive health, development and social outcomes;
- Encourage integration between the global health and climate change priorities of the Australian Federal Government, and ensure that Australia's health system, Official Development Assistance and other activities respond to the health risks generated by climate change;
- Facilitate sustainable economic outcomes, because effective adaptations will reduce anticipated health costs under climate change. Prevention and early intervention in climate-related health issues will generate significant savings over time and thus represents a viable investment portfolio for Australian Governments. Climate-health projects can be expected to be of net economic benefit;
- Mobilise action on climate change, environmental change and human health at multiple levels of government, community and the private sector; and
- Demonstrate to countries in our region that other levels of government – in addition to national governments - can act quickly and effectively to mitigate and adapt to the health impacts of climate change.

Annex 1

Climate and Health Alliance's Framework for a National Strategy on Climate, Health and Well-being

The purpose of the Framework is to:

- Provide a high-level framework to guide government policy and decision-making processes in addressing climate change and associated health impacts, both positive and negative
- Enable the Federal Government to take a leadership role in protecting the health and well-being of Australian communities from the impacts of climate change
- Increase awareness and understanding of the health impacts of climate change in Australia among politicians, policymakers and the general public
- Assist the Federal Government in fulfilling its international obligations under the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement, the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the Sustainable Development Goals (SDGs)
- Provide a policy framework against which Australia can demonstrate its progress against the Lancet Countdown Indicators (an annual global evaluation of nations' responses to climate change, and the health benefits that emerge from the low carbon transition)
- Enhance collaboration both vertically (involving national, state and local governments) and horizontally (across multiple portfolios and sectors and within the health sector itself), to support healthy, sustainable, low carbon, climate-resilient communities and health care services
- Ensure the strong economic imperative for action on climate change is reflected in the adoption of "win-win" climate change mitigation and adaptation strategies, which both reduce greenhouse gas emissions and the social and economic burden of ill-health in the population.

The CAHA Framework is already being used to guide policy action on climate change and health in several jurisdictions, with the recent Human Health and Wellbeing Climate Adaptation Plan (H-CAP) in Qld¹¹² drawing on the Framework, and the policy directions outlined in a recent Discussion Paper on Climate Change and Health in Tasmania are closely aligned with the Areas of Policy Action outlined in the CAHA Framework.

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Global Health Alliance Australia



This policy paper has been prepared by the Global Health Alliance Australia, in partnership with the Monash Sustainable Development Institute and the School of Public Health and Preventive Medicine at Monash University.

The Global Health Alliance Australia, based in Melbourne, was established by global health leaders to coordinate and create partnerships between organisations that work towards achieving health equity. The Alliance currently has 47 member organisations and fosters partnerships between these members which include universities, medical research institutes, WHO Collaborating Centres and international non-government organisations (INGOs). Through partnerships and collaboration, our member organisations encourage and support health equity and health security in our region, utilising and promoting the institutional and disciplinary expertise of our members and sponsors.

The Alliance drives change through:

1. Specialist advice and expertise
2. Influence and advocacy
3. Connections and networking
4. Collaboration and investment

We currently work across 12 wicked global health challenges (www.gllham.org) but the impacts of climate change affect every aspect of our work and all of the populations we seek to serve.

Monash University



For more than 60 years, Monash University has been working to change the world. We're tackling climate change, developing new drugs to save millions of lives, using virtual reality to treat addiction, bringing sight to the visually impaired, and so much more. Our work improves health, solves complex global challenges and empowers whole communities. We're working every day to create real, lasting global change and we encourage and challenge our students to be at the forefront of innovating for a better future. Combining world-leading teaching, research, facilities and experiences, Monash University ranks in the world's top 100 universities.

The Monash Sustainable Development Institute is a global hub for interdisciplinary research and education in sustainable development. We're harnessing the research and education strength of Monash University in partnership with the best thinkers and doers from across academia, industry, government and civil society to help achieve the United Nations 17 Sustainable Development Goals.

We work with over 200 local, regional and global partners to transform society's response to the environment, economic and social challenges facing the world today.

Monash University's School of Public Health and Preventive Medicine is co-located with the Alfred Research Alliance members in Prahran, Victoria. More than 1000 staff from diverse disciplines have research capabilities in large population-based studies, registries, clinical and community-based intervention trials, surveys, bio-statistics and implementation science.

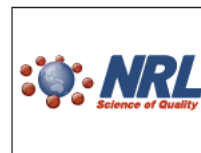
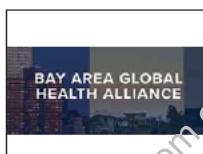
Research is undertaken in collaboration with governments, civil society organisations, corporations, and international agencies. Research areas include global health, with a focus on partnerships in the Asia Pacific region, cancer, injury and trauma, ageing, women's health, occupational and environmental health and chronic disease. Undergraduate and postgraduate students are taught in public health and medicine and, almost 200 people are completing research higher degrees.

Member Organisations

Gold Sponsors



Bronze Sponsor





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We face a direct existential threat. Climate change is moving faster than we are - and its speed has provoked a sonic boom SOS around our world.

If we do not change course by 2020, we risk missing the point where we can avoid runaway climate change, with disastrous consequences for people and all the natural systems that sustain us.



UN Secretary General António Guterres, September 2018.

Health and climate change in Australia
and the Asia Pacific region

“From Townsville to Tuvalu”

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**GLOBAL HEALTH
ALLIANCE
AUSTRALIA**

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Document 9

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Summary of key findings from the embargoed report: *The impacts of climate change on our health in Australia and the Asia Pacific Region: "From Townsville to Tuvalu"*

The report sets out a nine-point plan to address the local impacts of climate change and demonstrate international leadership:

1. Publicly recognise the health impacts of climate change.
2. The priorities articulated by Health Ministers in the Pacific should drive Australia's investments there.
3. Equip the current and future workforce in Australia and across the Asia Pacific region for emerging threats to health from climate change.
4. Devise an implementation agenda for addressing the health impacts of climate change by:
 - a. Undertaking a benchmark National Health Survey in Australia which includes questions to understand the environmental drivers of poor health, including the impacts of climate change;
 - b. Including the impacts and responses to climate change as a Standing Item on the agendas of all the COAG Councils;
 - c. Requiring that all Cabinet Submissions contain a climate change impacts analysis;
 - d. Tasking the Productivity Commission to assess the cost-effectiveness of action on climate change and the associated co-benefits on our health;
 - e. Giving high priority to the impacts on health of climate change in the Department of Foreign Affairs and trade forthcoming climate change action strategy for the aid program, and implement this strategy urgently; and
 - f. Reviewing and discussing the Climate and Health Alliance's Framework for a National Strategy.
5. Support direct action in Australia through State and Local Government Area-based public health strategies.
6. Establish a multi-institutional Health and Climate Change Research Facility, based in rural Australia.
7. Increase financial investment that would facilitate innovation and opportunities to develop effective health adaptations and low/zero-emissions initiatives – focusing on rural Australia and the Pacific.
8. Support proven solutions that address the impact of climate change on health.
9. Support policy initiatives that involve the community and citizens.

Linkages with the Pacific Health Ministers Meeting (PHMM)

- On 6 August 2019, Pacific Health Ministers will be asked to endorse a roadmap for implementing the *Pacific Islands Action Plan on Climate Change and Health*.
- There are some key linkages between GHAA recommendations (particularly Recommendations 2-4) and the PHMM roadmap, including campaigns to:
 - align Australia's investments in the Pacific with PHMM and World Health Organization priorities;
 - further engage Australia's health workforce in climate change action;
 - gather evidence and further information on the impacts of climate change on health and health related outcomes; and
 - empower all stakeholders to strive for better outcomes in combating climate change.