

**Submission
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INQUIRY INTO CLIMATE RESILIENCE

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Climate resilience - built environment and infrastructure

Submission to the Victorian parliamentary inquiry

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60 Leicester Street,
Carlton Vic. 3053



www.dea.org.a

Doctors for the Environment Australia (DEA) is an independent, self-funded, non-government organisation of medical doctors in all Australian states and territories.

DEA's work is based on the premise that humans need a future with clean air and water, healthy soils capable of producing nutritious food, a stable climate, and a complex, diverse and interconnected humanity whose needs are met in a sustainable way. We are therefore interested in environmental protection and restoration to promote human health and social stability.

Acknowledgement of Country

Doctors for the Environment Australia's members live and work around Australia. We would like to acknowledge Aboriginal and Torres Strait Islander peoples as the Traditional Owners of these lands, in the spirit of reconciliation.

We recognise that First Nations peoples have cared for Country and lived sustainably for millennia and that sovereignty of this land was never ceded. We pay our respects to First Nations Elders past and present, and to emerging leaders.

Summary

- Urgent and effective adaptation and resilience measures are needed to protect human health against incremental environmental change as well as the increasing frequency and severity of natural disasters driven by climate change.
- Funding models are vital for adaptation, preparedness and resilience implementation.
- A Health in All Policies approach is needed to avoid unnecessary impacts on human health.
- Climate change mitigation is integral to effective adaptation measures
- Climate resilience and adaptation overlap – what is required is preparedness to minimise risk and manage events as well as recovery following impacts.

Introduction

DEA welcomes the opportunity to respond to the Victorian Legislative Council Environment and Planning Committee's Inquiry into Climate Resilience,¹ focusing on the main risks facing the state's built environment and infrastructure from climate change and the impact these will have on the people of Victoria. The inquiry includes how the Victorian Government is preparing for these impacts, the barriers in upgrading infrastructure to become more resilient to such impacts, as well as the preparedness for future climate disaster events.

DEA advocates for adaptation measures because climate change impacts human health. We do not consider mitigation and adaptation to be separate, but rather on the same spectrum. All adaptation measures should be assessed as to their mitigation and health co-benefits and these factors should be incorporated into planning, to avoid climate change worsening beyond our ability to adapt.

¹ [Inquiry into Climate Resilience | Legislative Council Environment and Planning Committee 2024](#)

As described in the most recent Australian State of Weather and Climate Extremes report, we are already experiencing climate change impacts² and the latest IPCC report shows that ‘Every increment of global warming will intensify multiple and concurrent hazards’.³ We are in an evolving climate emergency and must urgently act on climate change adaptation and mitigation.

Fundamentally, our built environment and infrastructure exist to protect human health and wellbeing by providing shelter, space for daily activities, livelihood, provision of goods and services as well as transport and much more. Consequently, planning for the resilience of the built environment and infrastructure needs to consider human health and wellbeing. This requires a ‘Health in all policies’ (HiAP) approach which is advocated by the World Health Organization,⁴ Australia’s National Health and Climate Strategy,⁵ DEA and many other organisations to avoid unnecessary human suffering. The HiAP approach should inform all future federal and state policy development.

There are a number of adaptation plans in place relevant to Victoria, including the current National Climate Resilience and Adaptation Strategy,⁶ the forthcoming National Adaptation Plan which will replace it,⁷ Victoria’s various cross-sectoral adaptation action plans⁸ as well as local government plans. These plans should clearly inform each other. However, at this point most of the plans seem to be ‘plans to have a plan’. The gaps lie in lack of funding for development and implementation of these plans and the risk is that each level of government will abrogate responsibility to other levels – and that government in general will abrogate responsibility to private companies and individuals. DEA proposes that funding for resilience measures could be generated at a state level by:

- revoking subsidies currently provided to fossil fuel industry and redirecting these funds to preparedness
- instituting a tax on polluting industries, including the fossil fuel industry, to fund preparedness
- considering models for insurance which could provide discounts on insurance premiums for infrastructure which is resilient to climate damage.

Regarding the spectrum of resilience measures, prevention and preparedness measures should be prioritised over rebuilding or ‘bouncing back’ after an impact. Prevention measures are more economical and effective than remediation alone after an event, however, prevention is consistently underfunded. A global stocktake on adaptation measures found that ‘documented adaptations were largely fragmented, local and incremental, with limited evidence of transformational adaptation and negligible evidence of risk reduction outcomes’.⁹ The Australian Productivity Commission has consistently documented concerns about underinvestment in prevention¹⁰ as well as the need to shift focus to prevention, mitigation and preparedness.¹¹

² [The State of Weather and Climate Extremes 2023 | Climate Extremes 2024](#)

³ [AR6 Synthesis Report: Summary for Policymakers Headline Statements | IPCC 2023](#)

⁴ [Promoting Health in All Policies and intersectoral action capacities | WHO 2024](#)

⁵ [National Health and Climate Strategy | Australian Government Department of Health and Aged Care](#)

⁶ [National Climate Resilience and Adaptation Strategy 2021-2025 | DCCEEW 2021](#)

⁷ [Climate adaptation in Australia | DCCEEW 2024](#)

⁸ [Our commitment to adapt to climate change | DEECA 2022](#)

⁹ Berrang-Ford, L, Siders, AR, Lesnikowski, A et al. A systematic global stocktake of evidence on human adaptation to climate change. Nat. Clim. Chang. 2021;11:989–1000. <https://doi.org/10.1038/s41558-021-01170-y>

¹⁰ [Inquiry report - Natural Disaster Funding - Productivity Commission 2015](#)

¹¹ [D Emergency management - Report on Government Services 2024 - Productivity Commission](#)

Furthermore, building activities are inherently carbon-intensive, so current and future building materials and techniques need to be rapidly decarbonised, meeting the needs of both climate change mitigation and adaptation. The Climate Council's recent report outlines how this can be done.¹²

Question (a) Main climate risks to built environment and infrastructure

(a) the main risks facing Victoria's built environment and infrastructure from climate change and the impact these will have on the people of Victoria

We note that an extensive study of vulnerability to heatwave effects in Victoria was undertaken in 2018 and provides a solid template to consider the range of risks of heat and other impacts.¹³ This report considered heatwave effects on sectors relevant to this inquiry: electricity, transport, water, agriculture, construction, manufacturing, mining, tourism and health.

DEA has expertise in human health effects of climate change, so most of our comments are directed to these aspects.

Physical infrastructure is built to shelter, protect, serve and transport humans and goods on which humans depend – damage to infrastructure threatens human health and wellbeing. Existing housing and other buildings need to be upgraded to be resilient to the current and forthcoming extremes of climate, particularly heat and floods. An emphasis is needed on passive cooling (and heating) to improve thermal comfort and safety, reduce energy consumption, cost and greenhouse gas emissions.

Public cooler places need to be systematically provided as places of refuge for those whose housing is currently not safe in extreme heat. This is a particular problem at nighttime during extreme heat, when there are few cool public places open and the health risks from heat are highest.

Passive cooling is vital to reducing the urban heat island effect caused by the large amounts of hard surfaces that absorb and retain heat in our cities, making them increasingly and dangerously hot. Significant increases in the green canopy and other types of shade are needed throughout our urban spaces including streets, parks and beaches. Such places are important components of human wellbeing as spaces for relaxation, play, recreation, exercise and contact with nature as well as active transport and reducing car-dependence.

Adaptation is also needed for our public transport infrastructure, including shelter for waiting passengers and rail tracks that do not buckle in extreme heat or become submerged due to heavy rainfall. Comfort and safety are vital to transition from individual vehicle use to mass and active transport.

Notably, many health services and other health infrastructure are at risk from extreme weather events including storms, floods, power outages and extreme heat, further compounding their health effects. Victoria needs detailed local planning in line with Australia's National Health and Climate Strategy.¹⁴

DEA's extensive range of fact sheets outline the health effects that the people of Victoria can expect to occur from climate change impacts:

¹² [Our plan to keep cutting climate pollution this decade: How we'll build things | Climate Council 2024](#)

¹³ [Heatwaves in Victoria: a vulnerability assessment | National Capital Economics - DELWP 2018](#)

¹⁴ [National Health and Climate Strategy | Australian Government Department of Health and Aged Care | 2023](#)

- [Bushfires and health fact sheet - DEA](#)
- [Heat and Health fact sheet - DEA](#)
- [Severe storms, floods and your health fact sheet - DEA](#)
- [How climate change affects mental health in Australia - DEA](#)
- [How climate change affects your health: the facts - DEA](#)

Question (b) Victorian Government preparation and mitigation

(b) how the Victorian Government is preparing for and mitigating the impacts of climate change on our built environment and infrastructure.

Adaptation action plans

Victoria has a suite of sectoral adaptation actions plans to evaluate risks and to fund and drive preparedness across a range of sectors.¹⁵ Plans exist, but are largely uncosted, unfunded and often short on detail. For example, although detailed work has occurred for the Port Phillip Bay Coastal Hazard Assessment,¹⁶ but the next step listed is another plan, rather than action.

Victoria's Health and Human Services Adaptation Action Plan 2022-2026¹⁷ needs to be assessed to ensure its consistency with the more recent National Health and Climate Strategy.¹⁸

Emergency management planning

Emergency services preparedness

Emergency Management Victoria has a range of strategies and plans, which include prioritising the protection of vital infrastructure.¹⁹ The Productivity Commission has conducted a recent comprehensive review of this topic across jurisdictions.²⁰

Notably, all emergency plans require sufficient funding for ongoing policy development, exercising of the plans and evaluation of their effectiveness. State emergency plans involve significant parts of the Victorian Government, across departments covering health, transport, wildlife, livestock and companion animals. Concerningly, recent state government budget cuts have resulted in a significant loss of staff, including experienced staff and their corporate knowledge, across the whole of the Victorian Government. It is unlikely that capacity for emergency planning and evaluation has escaped these cuts and Victoria's preparedness for climate change impacts will have suffered.²¹

¹⁵ [Adaptation Action Plans | DEECA 2022](#)

¹⁶ [Port Phillip Bay Coastal Hazard Assessment | DEECA 2024](#)

¹⁷ [Climate change adaptation and emissions reduction](#)

¹⁸ [National Health and Climate Strategy | Australian Government Department of Health and Aged Care | 2023](#)

¹⁹ [Responsibilities | Emergency Management Victoria](#)

²⁰ [D Emergency management - Report on Government Services 2024 | Productivity Commission 2024](#)

²¹ [Redundancy bonanza as 4000 jobs slashed from Vic public service | AFR 2023](#)

Community emergency preparedness

It is unclear the extent to which community members are aware of and actively use the various emergency preparation and management information tools available to them, including the state government VicEmergency app and the Australian Red Cross Get Prepared app.²² For instance, many people may be aware of the importance of bushfire preparedness but are perhaps less aware of that for flooding.

- Do the available tools fulfil their purpose in providing easily accessible emergency information and advice, including that on preparing themselves and their own infrastructure for emergencies?
- Are there segments of the community that are insufficiently served by current systems and are consequently at higher risk?
- Are community members, including businesses, sufficiently prepared for all types of emergencies?

Regular evaluation of the effectiveness of emergency public information systems and community preparedness is a vital part of climate resilience.

Question (c) Barriers to infrastructure upgrades

(c) the barriers facing Victoria in upgrading infrastructure to become more resilient to the impacts of climate change, including barriers in rebuilding or retrofitting infrastructure, including but not limited to, issues relating to insurance and barriers faced by local government.

Delays in upgrading infrastructure relate to failure to assess risk and appropriately fund action. Drivers of these delays are outlined below.

Failure of imagination

It is hard to act on what we haven't seen before and on predicted future events. Current plans tend to be 'plans to plan' rather than focusing on actions and implementation. However, science and data on climate change impacts are increasingly available and being rapidly updated. Risk assessments, both high-level and granular, should drive decisions and action and the expertise of the insurance industry could inform risk assessments. Individuals and communities could inform government of local risks, for example, by facilitating a mapping project²³ which could help develop heat maps for action.

Failure to learn from experience

As the Productivity Commission warns, 'Groundhog Day stories abound'. An example is under-recognition of the magnitude of work and long timeframes involved in repair or rebuilding after significant events.²⁴

We can look at local Victorian examples – for just the events listed on the Emergency Recovery Victoria website²⁵ how many individuals or communities have not been able to return or rebuild and how many are still homeless and/or displaced?²⁶ The timeframes for recovering from the June 2021 storm and flood event

²² [Get Prepared app | Australian Red Cross 2024](#)

²³ [Central Highlands: Mapping what is important | Central Highlands state forests | Engage Victoria 2024](#)

²⁴ [Eighteen months on from record NSW Northern Rivers flooding, just 70 eligible homes have buyback settled | ABC News 28 Aug 2023](#)

²⁵ [Emergency Recovery Victoria | vic.gov.au](#)

²⁶ ['Disaster's in the recovery': bushfire survivors still waiting for homes | The Guardian August 2022](#)

are focussed on short-term recovery measures and run to only 12 months.²⁷ The ANU is researching implications for affected communities – how do individuals and groups make difficult decisions about relocating when their local area has been or will be affected by climate impacts?²⁸

Lack of funding

Appropriate funding is vital to effective action.

For example, the Built Environment Climate Change Adaptation Action Plan 2022–2026 has only five references to funding.²⁹ DEA proposes that funding could be found by redirecting fossil fuel subsidies into adaptation and preparedness funding. Furthermore, a tax on fossil fuel and other polluters could contribute to both mitigation and adaptation. Funding models could be developed for insurance, such as discounts on premiums, for taking preparedness actions. The Productivity Commission has recommended changes to funding approach for natural disasters³⁰ – has this been implemented?

Lack of clarity of responsibility and accountability for infrastructure upgrades and preparedness

There will always be the tendency to 'pass the buck' between levels of government and between private companies and individuals. For example, who is responsible for preparedness and infrastructure upgrades for public health services in Victoria? How will hospitals have funding to take on this work, particularly given current funding models and short budget cycles? Will accountability for preparedness work for hospitals sit with the Built Environment Adaptation Action Plan or the Health and Human Services Adaptation Action Plan or will it fall through the cracks? There should be clear responsibility and accountability within these plans.

Government terms in office are shorter than the duration of an action plan

If the adaptation plan runs for five years, outcomes are not likely to be evaluated during the tenure of any current Victorian government, and actions and measurements are likely to be deferred to the following term. Furthermore, scope and remit of any government agency can make a significant difference in effectiveness – this takes time to develop correctly and any restructure of these agencies compounds delays, as in a recent NSW example.³¹ There are likely to be similar challenges due to the recent restructure of the Victorian Department of Health.

Other barriers to consider

- **Closing emergency communications gaps.** Are we considering and investing in other means of closing communication gaps when our buildings and infrastructure are damaged? These include social connectedness and networks in events of emergency when other communication methods go

²⁷ [June 2021 Flood and Storm | vic.gov.au 2024](#)

²⁸ [Climate change is forcing Australians to weigh up relocating. How do they make that difficult decision? | ANU Institute for Climate, Energy and Disaster Solutions 2024](#)

²⁹ [Built Environment Climate Change Adaptation Action Plan | DTP 2022](#)

³⁰ [Reforming funding arrangements for natural disasters - PC News - October 2015 - Productivity Commission](#)

³¹ [From Resilience NSW to recovery and reconstruction: what's happening to disaster agencies? | New South Wales | The Guardian 18 Aug 2022](#)

down.³² Can the Victorian Government imagine and institute local community network communications?

- **Supply chain resilience.** During the earlier parts of the COVID pandemic, the effects of supply chain disruptions became obvious and the Productivity Commission has made recent recommendations in this area.³³

Question (d) Victorian planning system

(d) the adequacy of the current Victorian planning system as it relates to its adaptation to, preparation for, and mitigation of climate change impacts

DEA is not well positioned to comment in detail on buildings and infrastructure planning. However, DEA applauds some recent Victorian government work:

- investing \$112 million to improve the energy efficiency of 35,000 social housing properties, to reduce the impact of heatwaves in summer and save residents money on energy bills³⁴
- the case study on tree planting in Melbourne's urban areas to promote cooling effects³⁴
- the cessation of new gas connections in Victorian homes and government buildings from 1 January 2024^{35,36}
- focusing on vulnerable individuals and communities in emergency management.³⁷

Question (e) Better climate preparation for Victoria

(e) what more could be done to better prepare Victoria's built environment and infrastructure, and therefore the community, for future climate disaster events

Comments on this topic can be found in our introduction and responses to questions above, including:

- funding models
- focussing on health services, residential care, other health infrastructure and emergency services
- risk assessments
- warning systems which are real-time, state of the art and fit for purpose, including the Vic Emergency app
- equity, social justice and priority groups, such as First Nations peoples. For example, Sweltering Cities are a grassroots advocacy group focussing on climate action as a social justice issue³⁸

³² [The missing link in Australia's climate change adaptation strategy: Social infrastructure | Pearls and Irritations Oct 2023](#)

³³ [Supply chain vulnerabilities - Catherine de Fontenay's speech | Productivity Commission 2022](#)

³⁴ [Built Environment Adaptation Action Plan – a snapshot | DEECA 2022](#)

³⁵ [New Victorian homes and businesses to be gas free from 2024 - Environment Victoria](#)

³⁶ [Victoria's Gas Substitution Roadmap | DTP 2024](#)

³⁷ [Emergency management - Service Providers | DFFH 2023](#)

³⁸ [Sweltering Cities 2024](#)

- local community empowerment, such as through a permanent Victorian Community Climate Adaptation Fund (VCCAF).³⁹ Similar Victorian funding programs have been successful and oversubscribed.⁴⁰
- Incorporating, through standards and regulation, recommendations from the Climate Council for low carbon building materials and techniques to meet mitigation and adaptation requirements.⁴¹

Question (f) Need for further investigation

(f) whether further inquiries or investigation may be needed into other aspects of climate change adaptation and climate disaster preparedness in Victoria, noting that climate change will have far-reaching impacts on all aspects of Victorian life, including but not limited to biodiversity, human health, primary production, industry, emergency services and more, and that while these areas may overlap with the matters covered in this inquiry, they may also warrant further investigation in their own inquiries.

Health and emergency services need further investigation, using a Health in All Policies approach and in line with the National Health and Climate Strategy released late last year.⁴²

Biodiversity and deforestation

There is a concurrent and related biodiversity crisis, despite the growing evidence connecting trees and forests to human physical and mental health and the importance of protecting the environment upon which we depend.⁴³

Trees:

- boost our physical and mental health
- filter our air and water
- provide homes for pollinators that underpin much of our food supplies
- cool our communities
- help protect us from infectious diseases
- connect to Country
- help curb climate change- the biggest threat to health this century
- and more.⁴⁴

The federal government recently delayed the major improvements needed to the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.⁴⁵ The situation is urgent and states still have significant powers to protect our natural assets – this needs to be seen as a priority for many reasons including as part of vital climate change mitigation and adaptation actions.

³⁹ [Add Your Name: A Community Climate Adaptation Fund for Victoria | Friends of the Earth 2024](#)

⁴⁰ [Community Climate Change and Energy Action – Funded projects | Sustainability Victoria 2024](#)

⁴¹ [Our plan to keep cutting climate pollution this decade: How we'll build things | Climate Council 2024](#)

⁴² [National Health and Climate Strategy | Australian Government Department of Health and Aged Care](#)

⁴³ [Why losing Australia's biodiversity matters for human health: insights from the latest State of the Environment assessment | Medical Journal of Australia 2023](#)

⁴⁴ [Trees: the forgotten heroes of our health - Doctors for the Environment Australia 2023](#)

⁴⁵ [Australia's long-sought stronger environmental laws just got indefinitely deferred. It's back to business as usual | The Conversation April 2024](#)