



Australian Government

Department of Climate Change, Energy,  
the Environment and Water

# National Adaptation Plan

## Issues Paper

March 2024



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Department of Climate Change, Energy, the Environment and Water

GPO Box 3090 Canberra ACT 2601

Telephone 1800 900 090

Web [dcceew.gov.au](https://dcceew.gov.au)

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### **Acknowledgement of Country**

We acknowledge the Traditional Owners of Country throughout Australia and recognise their continuing connection to land, waters and culture. We pay our respects to their Elders past and present.

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# Executive summary

Even with strong global action to reduce emissions, the impacts of climate change will continue to increase over the coming decades due to past emissions. Adaptation is a critical component of the longer-term response to climate change. It is crucial to protecting people, livelihoods, and ecosystems. The Australian Government has committed to developing a National Adaptation Plan and is seeking views from stakeholders.

Climate adaptation is the process of adjusting to actual or expected climate change and its effects. These effects can be slow-onset impacts such as gradual temperature increases, or acute impacts influenced by climate change such as bushfires and severe storms.

The goals of climate change adaptation are to increase Australia's capacity to anticipate and respond successfully to climate change. This includes taking action to reduce climate risk, strengthen resilience and enhance well-being. Adaptation may be as simple as ensuring people have a cool place to go during a heatwave, or as complex as being prepared to maintain essential functions such as transport systems during a severe storm.

Adaptation involves everyone. Governments, households, industry, businesses and community organisations all have a role to play. Action is already underway to help Australia adapt to climate impacts. The Australian Government's role is to:

- provide national leadership and information to help others to adapt
- manage the risks to its own assets and the services and programs it provides
- maintain a strong, flexible economy, and a well targeted social safety net that can assist people in vulnerable situations to adapt.

To be better prepared for and manage increasing risks arising from climate change, Australia needs to make adaptation 'mainstream.' This requires a fundamental shift. Considering climate risk needs to be business-as-usual for governments, organisations, communities and individuals across Australia. The 2023 Intergenerational Report found that sustained action across adaptation and emissions reduction will be required to maintain productivity and fiscal sustainability as well as achieve better social and environmental outcomes, with effective investments in resilience reducing costs to the economy in the long run (The Treasury 2023a). To drive this step change in adaptation, the Australian Government is investing \$28 million over 2 years in the National Climate Adaptation and Risk Program. This includes Australia's first National Climate Risk Assessment and National Adaptation Plan.

The first pass of the National Climate Risk Assessment has identified 11 priority risks facing Australia. These risks will be assessed in detail in 2024. The National Adaptation Plan will establish a comprehensive framework for adapting to these nationally significant, physical climate risks. This framework is expected to include:

- a vision statement
- objectives
- an approach to addressing nationally significant climate risks and prioritising adaptation actions
- a plan for monitoring and evaluating adaptation progress.

The scale of climate change impacts across Australia now and into the future means that significant resources will be required to adapt and build resilience. This cannot be achieved solely through public funding – and nor should it. Governments have a leadership and coordinating role in adaptation. However, it is generally most efficient and appropriate for businesses and individuals to understand and manage their own risks where they can do so.

If private capital is shifted towards adaptation and resilience, investors can secure their assets, unlock new investment opportunities and safeguard the long-term financial wellbeing of their beneficiaries. Analysis undertaken for the United Kingdom’s third Climate Change Risk Assessment found that many early adaptation investments deliver high value for money and that adaptation also often delivers important co-benefits including direct economic gains (Watkiss 2022).

While there are clear private benefits from adaptation action, there is also a need for government initiatives that incentivise private sector investment in adaptation, and catalysing private sector investment in adaptation and resilience at scale will require supporting data and understanding and addressing existing barriers. Effective deployment of higher volumes of investment will also benefit from a clear, shared approach for prioritising adaptation actions.

Adaptation works best if the solutions are designed and implemented as close as possible to where the impacts are being felt. Adaptive capacity amongst communities, businesses and individuals varies greatly, and governments have a particular responsibility to help people and communities in disproportionately vulnerable situations.

The National Climate Risk Assessment and National Adaptation Plan are central to the government’s work to strengthen adaptation, reduce climate risk and ensure Australia can continue to prosper in an increasingly climate-disrupted future. The National Adaptation Plan will not replace or duplicate more detailed adaptation plans for other levels of government, sectors, or systems. It will complement disaster management planning and systemic resilience policy, including the National Disaster Risk Reduction Framework. These complementary bodies of work are led by the National Emergency Management Agency (NEMA), along with other agencies under the Australian Government Crisis Management Framework.

This issues paper includes:

- context for the adaptation plan, including the roles of different levels of government and the private sector in adaptation
- proposed foundations of the plan
- a closer look at climate risk and adaptation across 8 key ‘systems’ such as the economy, trade and financial system and the natural environment, including a summary of action already underway, and possible future directions for mainstreaming adaptation
- questions to prompt consideration and input on the broad elements of the adaptation plan and how to strengthen the action already underway.

Responses to this issues paper, further consultation and the findings of the risk assessment will all inform a draft adaptation plan for public comment.

# 1. Introduction

## 1.1. A National Adaptation Plan for Australia

To be better prepared for and manage increasing risks arising from climate change, Australia needs to ‘mainstream’ adaptation action, drive private sector investment and support people and communities in disproportionately vulnerable situations. This means considering and managing climate risks as part of business-as-usual for governments, organisations, communities and individuals across Australia. To set the frameworks to drive this change, the Australian Government is investing \$28 million over 2 years to deliver the National Climate Adaptation and Risk Program, including Australia’s first National Climate Risk Assessment and National Adaptation Plan.

This issues paper summarises the work conducted in 2023 and provides a basis for further consultation and development of the National Adaptation Plan (the plan) in 2024.

Work conducted to date has focused on research and analysis, consideration of results from the first pass of the National Climate Risk Assessment, and targeted consultation. To inform this issues paper, the Department of Climate Change, Energy, the Environment and Water (the department) held 11 roundtables over October and November 2023 with key stakeholders including peak representative bodies, businesses and non-government organisations.

## 1.2. How to give feedback

The department is seeking feedback on the broad elements of the plan and how to strengthen adaptation action in particular areas. Consultation on the issues paper runs from 12 March to 11 April 2024; please visit <https://consult.dcceew.gov.au/climate-adaptation-in-australia-national-adaptation-plan-issues-paper> for options on how to provide your feedback. Specific consultation questions appear in Chapters 2 and 4 and a consolidated list is at Appendix C.

## 1.3. Roles and responsibilities for adaptation

Adaptation policy is complex and involves everyone. The Roles and Responsibilities for Climate Change Adaptation in Australia were agreed to by the then Council of Australian Governments’ (COAG) Select Council on Climate Change in 2012. These roles are underpinned by the principle that risks are most effectively managed by recognising and empowering those who are best placed to manage them. This framework guides federal, state and territory government cooperation and highlights the specific roles and responsibilities for each level of government and non-government sectors.

The COAG principles place local initiative and private responsibility at the forefront of climate change adaptation in Australia. These recognise that while governments have a leadership and coordinating role in adaptation, it is generally most efficient and appropriate for businesses and individuals to understand and manage their own risks. In addition, adaptation works best if the solutions are designed and implemented as close as possible to where the impacts are being felt.



State and territory governments have critical roles to play in adaptation through:

- providing local and regional science and information to assist both government and private parties in assessing climate risks and adapting to climate change
- determining and administering land use planning systems for strategic and master planning and development control
- managing risks to a broad range of services to citizens, including in areas such as emergency management, transport, environment, health services and public housing
- administering a significant body of legislation, including ensuring their regulatory and market frameworks promote effective adaptation by private parties
- managing a substantial amount of assets and infrastructure
- planning and managing use of Crown lands.

Each of the state and territory governments have undertaken various levels of climate risk assessment and adaptation planning for their jurisdictions (see Appendix B).

Local governments are similarly instrumental in adaptation, beyond developing local adaptation plans and managing local level assets, they are also responsible for:

- managing risks and impacts to local government service delivery
- ensuring policies and regulations under their jurisdiction, including local planning and development regulations, incorporate climate change considerations and are consistent with state and Commonwealth adaptation approaches.

Australian Government roles and responsibilities are:

- providing national leadership on adaptation reform
- providing nationally authoritative climate science and information, including updated climate projections and scenarios of future climate, to inform decision-making across the economy
- managing climate risks to Australian Government assets and services, including investments in public infrastructure, for example through improved resilience in critical infrastructure such as telecommunications and energy networks
- maintaining a strong, flexible economy and a well-targeted social safety net to ensure resources are available to respond to climate change and at-risk groups are not disproportionately affected.

The Australian Government works on adaptation with state and territory governments and the Australian Local Government Association through the Energy and Climate Change Ministerial Council. This is supported by the Adaptation Working Group, which is chaired by the Commonwealth and has members representing all Australian jurisdictions.

While adaptation should be community-focused and place-based, this does not mean it should be unsupported by governments. Adaptive capacity amongst communities, businesses and individuals varies greatly, and governments have a particular responsibility to help people and communities in disproportionately vulnerable situations. Successful local adaptation relies on the provision of high-quality information on climate risks and climate risk planning tailored to its users, provided as part of an effective framework of local, state and national adaptation policies.

## 1.4. Scope of the National Adaptation Plan

The plan will respond to the findings of the National Climate Risk Assessment (see section 1.5.4). It will also establish a comprehensive framework for adapting to the nationally significant, physical climate risks faced by Australia, including in Australia’s Exclusive Economic Zone and external territories.

- Nationally significant risks are those whose consequences would be pervasive and prolonged and will require a national coordinated response.
- Physical climate risks are those influenced by climate change, such as higher temperatures, bushfires, storms, and floods. These can be either discrete events such as a bushfire or flood, or chronic impacts, such as increasing numbers of hot days or rising sea levels.

The plan will consider and integrate First Nations’ perspectives and will respect First Nations peoples’ rights to self-determination, noting that First Nations peoples’ knowledges and practices are connected to Country and cannot be taken out of context. This is consistent with the approach taken for the National Climate Risk Assessment, on advice from First Nations peoples consulted.

Once finalised, the National Adaptation Plan will supersede the *National Climate Resilience and Adaptation Strategy 2021–25*.

The National Adaptation Plan is expected to have a variety of users and uses. A successful plan would be used by:

- Australian Government agencies to undertake adaptation action
- other levels of government, business and community groups, to understand the national context and framework for adaptation planning in which their own plans are made
- community groups and civil society to monitor national action on adaptation.

The National Adaptation Plan will not:

- replace or duplicate more detailed adaptation plans for other levels of government, sectors, or systems
- duplicate disaster management planning and systemic resilience policy, which is led by NEMA, and other agencies under the Australian Government Crisis Management Framework
- address ‘transition risks’ from the transition to a net zero emissions economy, including technological changes, policy shifts or changes in consumer preferences.

Further information on the foundations of the National Adaptation Plan, including the evidence base, governance, monitoring and evaluation, and adaptation principles are discussed in Chapter 2.



## 1.5. The National Adaptation Plan in context

### 1.5.1. Global and national climate change

The Intergovernmental Panel on Climate Change (IPCC) provides regular assessments on climate change. In 2023, it found that it is unequivocal that human influence has warmed the atmosphere, ocean and land. The IPCC found that global surface temperatures will continue to increase until at least mid-century under all greenhouse gas emissions scenarios it considered. Climate risks increase with every increment of warming.

Bureau of Meteorology and CSIRO data show Australia is already experiencing significant climate changes and the impacts of climate change are projected to worsen in the coming decades (Figure 1) (BoM 2022).

**Figure 1: Overview of observed and projected trends in Australia’s climate hazards**



### 1.5.2. International agreements and national adaptation planning

Adaptation is one of the three pillars of the Paris Agreement, along with mitigation and finance. Article 7 of the Paris Agreement sets a global adaptation goal, and adaptation actions which signatories can undertake. The global goal on adaptation is to:

- enhance adaptive capacity
- strengthen resilience
- reduce vulnerability to climate change.

At the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties 28 held in Dubai in November 2023, parties agreed to a framework to assess progress towards the global goal on adaptation, including specific adaptation targets.

The agreement sets out adaptation actions that parties may undertake as appropriate to their circumstances, including adaptation planning. The United Nations Environment Programme reports

that around 70 countries were developing national adaptation plans in 2022 (UNEP 2022). In the past 2 years, Canada and New Zealand published their first plans, while other countries such as Germany and the United Kingdom have released their third iterations.

The Sendai Framework for Disaster Risk Reduction 2015–2030 forms another part of the international context for climate adaptation. It provides a roadmap for how we make communities safer and more resilient and drives international disaster risk reduction action. Australia is a party to the Sendai Framework and NEMA leads the implementation of the Sendai Framework within Australia. The relationship between climate change adaptation, disaster risk reduction and resilience are described further in Box 1 and shown in Figure 2, which also includes the Sustainable Development Goals.

### **[Box 1] Adaptation and resilience**

The terms ‘adaptation’ and ‘resilience’ are sometimes used interchangeably but do have distinct meanings.

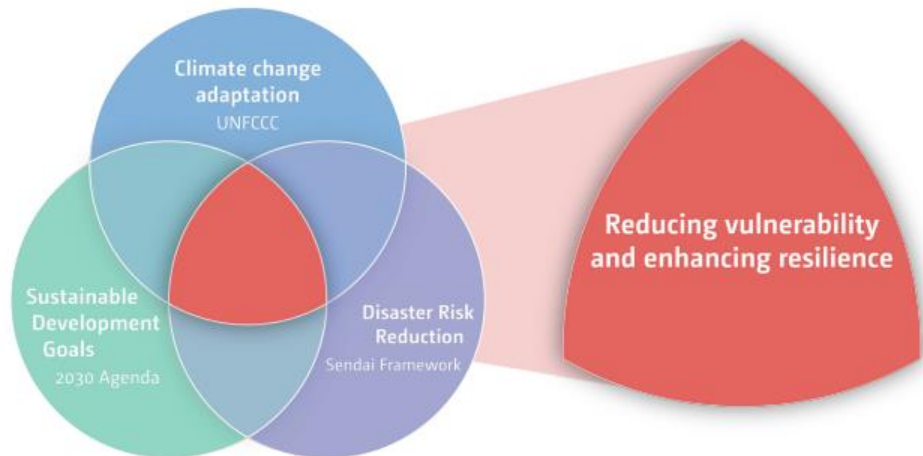
According to the IPCC, adaptation is the process of adjusting to actual or expected climate change and its effects. The IPCC defines resilience as:

*The capacity of social, economic and ecosystems to cope with a hazardous event or trend or disturbance, responding or reorganising in ways that maintain their essential function, identity and structure as well as biodiversity in case of ecosystems while also maintaining the capacity for adaptation, learning and transformation. Resilience is a positive attribute when it maintains such a capacity for adaptation, learning, and/or transformation (IPCC 2022, p. 7).*

A common disaster risk reduction definition of resilience incorporates this concept of maintaining function, but includes the ability to adapt, defining resilience as:

*The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions. (UNDRR 2009).*

**Figure 1 Integrating adaptation with the Sustainable Development Goals and the Sendai Framework**



### 1.5.3. Australian Government policies

The National Climate Risk Assessment and National Adaptation Plan are central to the Australian Government’s work to strengthen adaptation, reduce climate risk and ensure Australia can continue to prosper in an increasingly climate-disrupted future. Many complementary policies exist or are in train.

For example, as part of developing its national Net Zero Plan and 2035 emissions reduction target, the Australian Government is developing 6 sectoral decarbonisation plans. These plans – for electricity and energy, transport, industry, resources, the built environment, and agriculture and land – will focus on emissions reduction, with adaptation and disaster resilience to be considered for each sector.

The National Health and Climate Strategy, released in December 2023, includes specific actions to build a climate-resilient health system and protect population health and wellbeing from the impacts of climate change.

The National Adaptation Plan will also complement the work of NEMA and the Department of Home Affairs on disaster risk reduction and resilience, preparedness, response, recovery, and reconstruction. Not all climate impacts are natural hazard events, and not all natural hazard events are exacerbated by climate change, but the overlap between the 2 sets is large. It is also important that efforts to rebuild after disasters strengthen resilience to future climate changes.

Australia’s Second National Action Plan under the National Disaster Risk Reduction Framework provides direction and seeks to enable and embed disaster risk reduction into business as usual across society. Developed through extensive consultation, the Second National Action Plan recognises that disaster risk reduction is a shared responsibility, and all levels of government, sectors and communities have an important role to play (NEMA 2023).

The Department of Home Affairs’ National Resilience Framework will provide a high-level framework to strengthen Australia’s resilience to all hazards. The National Adaptation Plan will have narrower coverage (physical climate risk) and more specific actions, while the Framework will set out principles across a wider set of hazards.

The Annual Climate Change Statement 2023 provides a summary of Australian Government adaptation and disaster risk management policies (DCCEEW 2023a).

#### **1.5.4. The National Climate Risk Assessment**

The National Climate Risk Assessment is providing the first ever national level assessment of how climate change puts what we value at risk, now and in the future. The first pass assessment identified 56 nationally significant climate risks and a subset of 11 priority risks for further analysis in the second pass assessment. In 2024, the government will continue to support a First Nations-led process to identify the climate risks for the First Nations values and knowledges system and prioritise and assess the most significant risks to underpin adaptation actions and strategies. The impact of climate change on First Nations peoples and communities was considered in the analysis of the 56 nationally significant climate risks, and the 11 priority risks for the second pass assessment. The National Adaptation Plan will set the framework for an effective response to these risks.

The full risk assessment methodology document and the outcomes of the first pass assessment are available on the department's website (DCCEEW 2024).

## 2. Foundations for a National Adaptation Plan

### 2.1. Draft vision and key objectives

The impacts of climate change affect everyone and all levels of government, households, industry, businesses and community organisations. Each have important, complementary and differentiated roles in adapting to the impacts of climate change. As a starting point for feedback, the department has developed a draft vision and objective for the plan:

*Australia’s economy, society, and natural and built environments are being managed and invested in, to reduce climate impacts and harness any opportunities now and into the future – by all levels of government, business and community.*

The key objectives of the National Adaptation Plan are to ‘mainstream’ adaptation action, drive a substantial uplift in private sector investment and establish support for people and communities in disproportionately vulnerable situations. Considering and managing climate risk will become part of business-as-usual for governments, organisations and communities across Australia.

#### **[Box 2] Consultation questions**

*What do you think a well-adapted and resilient Australia looks like?*

*Does the draft vision capture this? Why or why not?*

*Do you agree with the key objectives of the plan? What other suggestions do you have?*

*The plan will respond to the priority nationally significant risks identified in the National Climate Risk Assessment. Within those, what areas should be the Commonwealth’s priority for this National Adaptation Plan and why?*

### 2.2. Governance, monitoring and evaluation

The climate change risks we are facing today will not be the same risks we will face in the future so our plans must be reviewed and revised. Effective adaptation is an ongoing process of learning about risks, setting new priorities, planning for those priorities, implementing actions, evaluating the effectiveness of those actions, and making adjustments, as necessary.

As adaptation involves everyone, there is scope and may be a need for new models of governance and partnerships to address our shared challenges. Continuous monitoring and evaluation allow for timely adjustments in response to new data, changing circumstances and evolving risks.

Some comparable countries undertake adaptation plans in accordance with legislative requirements, in regular cycles, with mid-cycle review points. Appendix A provides an overview of adaptation planning in Canada, Germany, New Zealand, Spain and the United Kingdom. Mid-point and end-of-cycle reviews allow for monitoring and evaluation of actions, ensuring they are being implemented as intended and are effective. They also allow for updated climate science and risk assessments to inform implementation of current actions and the creation of new ones.

Within Australia, half of Australian states and territories have a legislated requirement to undertake a risk assessment, adaptation plan or have more general legislative obligations on adaptation policy. See Appendix B for more information.

In its 2023 Annual Progress Report, the Climate Change Authority recommended that the National Climate Risk Assessment and National Adaptation Plan should be legislated with updates at least every 5 years, with legislation to also cover ongoing monitoring and evaluation of the plan (CCA 2023). The Australian Government’s response to the authority noted that consideration would be given to the most appropriate frequency of repeating the assessment once the first assessment has been completed (DCCEE 2023a).

### **[Box 3] Consultation questions**

*What is working well in adaptation policy governance at the national level? Are there more opportunities for collaboration, or institutional changes that will help build a more adapted Australia?*

*How should adaptation success be measured?*

*What time horizon should the National Adaptation Plan cover?*

## **2.3. Western science, First Nations’ knowledges and experiences**

The National Adaptation Plan will be underpinned by the best science and analysis available, including the National Climate Risk Assessment, the IPCC’s Sixth Assessment Report, academic literature, expert elicitation, First Nations’ knowledges and community engagement. Creating this evidence base will help prioritise areas for adaptation and choose the best responses.

First Nations peoples’ connection to Country is ongoing and deeply linked to First Nations’ knowledges, sciences and practices, making First Nations peoples strong contributors to mitigation and adaptation actions. The risk assessment and plan will be informed by conversations with First Nations peoples on each system and embed First Nations’ perspectives, priorities and experiences.

## **2.4. Prioritising adaptation actions**

For a country as large and diverse as Australia, climate risks and adaptation needs are varied. For Australia’s National Adaptation Plan to be meaningful at the national level, a framework for prioritising actions is needed.

Some adaptation measures will be urgent to protect lives and livelihoods or critical infrastructure. Others will have long lead times, meaning that planning and action might be needed in the short-term to provide long-term benefits. For example, considering possible future adaptation pathways when planning new communities might result in a potential future hazard being avoided, rather than needing to accommodate or adapt in the future.

In deciding what actions are prioritised in the plan, a highly consultative approach will be employed as the plan is developed. The following draft principles could provide a framework for prioritising adaptation actions, preferencing those that:

- are ‘no regrets’ actions. These could be because they are addressing impacts expected with high likelihood in the next decade or have co-benefits (such as reducing emissions or reducing inequality)
- are the first part of an effective adaptation pathway. That is, they manage the impacts expected in the short term, but are deployed in a way that makes it easier to respond to greater risks in the future
- are key enabling actions for others, for example the provision of next generation regional climate projections, or guidance to support effective climate risk management
- drive action to strengthen adaptation across multiple sectors or regions
- promote consistency across the country, while allowing for local differences, including contexts and priorities
- assist groups who are disproportionately affected by climate impacts and ensure that adaptation addresses equity and human rights, such as gender-responsive adaptation, intergenerational equity and equity for people with a disability.

#### **[Box 4] Consultation questions**

*Do you support the draft principles for prioritising and sequencing adaptation actions over time? Why or why not? Are there any gaps?*

## **2.5. Structure of the National Adaptation Plan**

There are a number of ways that the National Adaptation Plan, and actions in the plan, could be organised. The department is inclined to use ‘domains’ – which represent values, assets and systems that may be at risk from climate change. The National Climate Risk Assessment defined four domains: economic, built, natural and social (see Appendix D). Using this structure for the plan would facilitate a focus on the priority adaptation areas while minimising the need for cross-referencing to address sectoral risks.

The contents and structure of the plan will be informed by the feedback received on this issues paper. It is expected that the plan will contain:

- a vision statement
- objectives
- an approach to addressing nationally significant climate risks and prioritising adaptation actions
- a plan for monitoring and evaluating adaptation progress.

It is also expected to include a clear direction for adaptation action for the Australian Government, both to manage its own assets and fulfil its national responsibilities to assist others to adapt.



## 3. Climate risks and adaptation actions

This chapter covers the priority climate risks identified by the National Climate Risk Assessment, the cross-cutting themes emerging from the consultation that informed this issues paper, and enablers of adaptation action.

### 3.1. Priority nationally significant climate risks

As outlined in Chapter 1, the National Climate Risk Assessment has identified 11 risks for progression to the second pass assessment (Table 1). The priority risks represent a subset of the risks identified in the first pass assessment process. The National Adaptation Plan will set the framework for an effective response to these risks.

**Table 1 National Climate Risk Assessment priority risks**

System	Risk statement
Natural environment	Risks to <b>aquatic and terrestrial ecosystem</b> condition and function or <b>landscape function and collapse</b> including through species loss and extinction
Primary industries and food	Risks to <b>primary industries</b> that decrease productivity, quality and profitability and increase biosecurity pressures
Regional and remote communities	Risks to <b>regional, remote and First Nations communities</b> that are supported by natural environments and ecosystem services
Health and social support	Risks to health and wellbeing from <b>slow onset and extreme climate impacts</b>
Infrastructure and built environment	Risks to <b>critical infrastructure</b> that impact access to essential services
Defence and national security	Risks to <b>domestic disaster response and recovery assistance</b> from the competing need to respond to multiple natural hazard events as well as national security contingencies, resulting in concurrency pressures and overwhelming the government's capacity to respond effectively
Cross-System – Communities and settlement	Risks to communities from <b>legacy-and-future planning</b> and decision-making that increases the vulnerability of settlements
Cross-system – Water security	Risks to <b>water security</b> that underpin community resilience, natural environments, water-dependant industries and cultural heritage
Cross-system – Supply chains	Risks to <b>supply and service chains</b> from climate change impacts that disrupt goods, services, labour, capital and trade
Cross-system – Economy, trade and finance	Risks to the <b>real economy</b> from acute and chronic climate change impacts, including from climate-related financial system shocks or volatility
Cross-system – Governance	Risk to adaptation from maladaptation and inaction from <b>governance structures</b> not fit to address changing climate risks

## **3.2. Cross-cutting themes**

The department conducted targeted stakeholder consultation in late 2023 via a series of 11 sectoral roundtables to support initial scoping of the National Adaptation Plan and development of this issues paper. Across sectors, consultations revealed several common themes including the importance of role clarity and better coordination, considering place-based approaches and assisted relocation, and water security.

### **3.2.1. Role clarity and coordination**

The Roles and Responsibilities for Climate Change Adaptation in Australia were agreed to by the then COAG Select Council on Climate Change in 2012, as described in Chapter 1.

Determining responsibility for climate adaptation will continue to be guided by the 2012 agreement. There will be opportunities to further develop a shared understanding of respective responsibilities through the development of the National Adaptation Plan.

As we move towards a national approach for adaptation action, it will be important to ensure roles remain clear and benefits from coordination are realised.

### **3.2.2. Place-based and community-led approaches**

Across consultations, we heard that adaptation should be place-based, community-led and values-driven so that adaptation is tailored to the specific areas and communities being affected. These approaches must actively involve local communities, and First Nations peoples. The rights of First Nations peoples to self-determination must underpin these approaches, while recognising the unique and deep-rooted connections to Country that are reflected in First Nations knowledges and practices. Local communities possess invaluable knowledge and understanding of their environments, which are crucial for developing effective and sustainable climate adaptation strategies.

Local governments and land councils will continue to play a critical role in effective engagement with local communities. Trusted community organisations and leaders will also play an important role in driving and advocating for climate adaptation awareness and action.

Part of taking a place-based approach is acknowledging that some individuals and communities are, or will be, disproportionately affected by climate impacts.

Coastal communities in particular are expected to face substantial climate impacts, compounded by coastal-specific changes in the natural and built environment, and in society. This is significant, given 86.5% of Australia's population lived within 50 km of the coast in 2022 (ABS 2024). Moreover, growth in coastal populations is no longer strictly concentrated in urban centres, but rather spreading to coastal townships and villages (Infrastructure Australia 2020).

Communities in northern Australia will also be disproportionately impacted by increasing climate risks. Regional, remote and First Nations communities in northern Australia may be more exposed to natural hazards including cyclones and flooding. Their small population bases, distance from critical services and limited supply chains hamper disaster response and recovery efforts. Without systemic mitigation and adaptation, these risks and their impacts will continue to increase.

In some circumstances, expected climate impacts may be so significant that communities consider ‘planned retreat.’ Planned retreat is the purposeful, coordinated movement of people and infrastructure away from risks. The complexity of planned retreat necessitates involvement of all levels of government and community (O’Donnell 2022). This is a very sensitive issue, and any such action would require deep consultation with communities to ensure human mobility is supported with dignity.

### **3.2.3. Water security**

Water is an absolute necessity for all life on earth, including humans – supporting people, the natural and built environment, agriculture, health and social service provision, energy and industry. Water also has deep significance for First Nations peoples, often linked to cultural identity, self-determination and economic sustainability.

Risks to the quality, quantity and accessibility of water resources may arise through events exacerbated by climate change such as prolonged drought, extreme heat, variability in rainfall, and flooding. Inadequate water quality, quantity, and accessibility can adversely affect numerous human health outcomes, including communicable disease transmission and psychological distress. Climate change events may also increase demand for resources, such as water to fight fires, food production and land for housing for displaced people. This may create additional risks and impacts if water delivery systems fail or are cut off – such as through contamination or pollution in flood situations.

## **3.3. Enablers of adaptation action**

Mainstreaming and strengthening adaptation will be underpinned by effective disclosure and management of climate risk. This will require reliable climate information and integrating climate risk into long term planning across all sectors.

### **3.3.1. Climate science, information and data**

Successful climate adaptation will require information, science and analysis to inform decision-making, help prioritise areas for adaptation, and choose the best responses.

Different stakeholders across sectors stressed the importance of a comprehensive evidence base and accurate and up-to-date climate scenarios to inform adaptation planning.

Up-to-date, reliable, useable and accessible data on climate impacts is fundamental to improving resilience. Investing in long-term data collection and analysis and committing resources will ensure science can better understand climate risk, including tipping points and systems thresholds and provide greater confidence for long-term investment. The Australian Government leads and/or invests in many substantial relevant programs, including:

- the National Partnership for Climate Projections, a partnership between all jurisdictions, national science agencies and the university sector to deliver a nationally aligned, sustainable, and integrated approach for Australian projection science and projections information. The next generation of climate projections will be released over 2024 by National Partnership for Climate Projections members. Further information about the forthcoming projections is summarised in the 2022-23 Annual Report of the National Partnership for Climate Projections, available on the department’s website

- the National Environmental Science Program (NESP) Climate Systems Hub, which is progressing the design and delivery of climate and adaptation science to deliver actionable insights for Australia
- the Australian Climate Service which provides improved data, intelligence and expert advice on climate risks and impacts to support and inform decision-making.

The need for more data or more usable information, or the increased sharing of existing data, was raised several times by stakeholders in early consultation on the National Adaptation Plan, including that:

- The Commonwealth (for example through the Australian Competition and Consumer Commission) already has significant data holdings from insurers. There is potential to share and use this data better within the Commonwealth and with other levels of government and the private sector.
- The private sector also has extensive data holdings that are relevant – there is opportunity for government-business collaboration.
- Clear guidance or definitions of adaptation and/or resilience would also help inform risk management and guide investment – the inclusion of adaptation in the sustainable finance taxonomy (see Section 4.1.2) would support this.

### **3.3.2. Climate risk management practices**

Adaptation planning needs to be properly informed to avoid maladaptation or unexpected cascading negative outcomes from adaptation actions. A foundational requirement for adaptation planning is the preparation of integrated vulnerability and risk assessments. When based on reliable information, as discussed above, this will inform the development of robust and effective adaptation plans.

There are increasing requirements across sectors for government and non-government entities to undertake risk assessments, disclose climate risks and develop plans to manage these risks. For example:

- The Australian Government has developed the Climate Risk and Opportunity Management Program, to identify, manage and disclose climate risks and opportunities across the Australian Public Service. Several states and territories have or are developing similar requirements.
- Climate risk disclosure and management for large listed and unlisted businesses and financial institutions are proposed to be phased in from 2024–25 and 2027–28 (The Treasury 2023). Requirements under the *Security of Critical Infrastructure Act 2018* for regular, board-approved risk management plans for critical infrastructure commenced in August 2023.

Together, these will provide the basis for mandatory management and monitoring of climate risks for a substantial part of Australia’s economic activity and assets.

The development of risk assessments and adaptation plans, and the delivery of adaptation measures, requires an appropriately trained and skilled workforce. Mainstreaming adaptation will mean a wide range of workers – not just those in roles specifically dedicated to risk management – will have to consider climate risks and their management and adaptation in their role, in a similar way to how managing risks to workplace health and safety involves everyone.

### **3.3.3. Workforce and skills**

Australia’s workforce is an important enabler of mainstreaming adaptation action, and is also affected by climate impacts.

Mainstreaming adaptation will require more workers to consider and manage climate impacts as part of their core roles – for example design standards for new infrastructure would consider impacts from a changing climate over the asset life and bankers will analyse climate risks when evaluating new investments.

The impacts of climate change, particularly higher temperatures, will present challenges for workers, businesses and labour productivity. Higher temperatures could impact labour productivity and require us to work differently. As temperatures rise, workers in exposed industries may need to reduce their exposure to heat or the physical intensity of their work. The 2023 Intergenerational Report (The Treasury 2023a) highlights the challenge that climate change poses to labour productivity, predominantly rising temperatures and extreme heat. The impacts of temperature and natural hazards will vary across regions, occupations and industries. Construction, agriculture, tourism and recreation sectors may be more heavily impacted due to occupations within these sectors relying heavily on physical effort, working outdoors and daytime work. Indoor workers can also be affected by heat and bushfire smoke. Impacts on workers in one system can have flow on effects to other systems with interdependencies.

## 4. A closer look at risks and actions

The following sections cover climate risks, current adaptation actions and potential next steps for the 8 systems identified in the National Climate Risk Assessment. As referenced in the risk assessment methodology, a system is defined as ‘a group of interacting or interrelated elements that act according to a set of rules to form a unified whole’ (DCCEEW 2023b, p.21). Readers can focus on the sections of interest to them. While you are reviewing those sections, please consider the consultation questions provided in Box 5. The First Nations’ values and knowledges system (section 4.3) includes additional consultation questions.

### **[Box 5] Consultation questions: all systems**

*What other existing policies are supporting adaptation for this system?*

*Who should be undertaking action to strengthen adaptation action in this system?*

*What are the barriers to strengthening adaptation? How could the National Adaptation Plan help with these?*

*What policies could be strengthened or added as the highest priorities?*

*What measurement and evaluative tools and processes should be implemented to track adaptation progress for this system?*

### **4.1. Economy, trade and financial system**

The economy, trade and finance system refers to Australia’s:

- interconnected insurance and investment markets
- import and export markets
- the distribution of goods and services
- institutional arrangements that govern them.

This system includes the institutional arrangements governing economic activities and trade networks across all scales.

This system has strong interdependencies with the following systems: primary industries and food; health and social support; regional and remote communities; infrastructure and the built environment.

Climate change has many direct and indirect impacts through acute, chronic and slow onset changes which drive a variety of risks to this system, ranging from individuals through to markets and governments with local, regional, national and international implications.

#### **4.1.1. What would mainstreaming adaptation look like?**

Mainstreaming and strengthening adaptation action in this system would be underpinned by effective disclosure and management of climate risk. In a well-adapted Australia, managing material climate risks would be standard for all businesses and financial institutions. Decisions would be underpinned by up-to-date, reliable and accessible climate information. Resources across the private

and public sector would be efficiently directed to adaptation and resilience to address the material risks identified.

#### **4.1.2. How do we get there?**

##### **Action underway**

The government and private sectors are already working to understand, disclose and manage climate risks. Below are some examples of actions already underway.

##### **Actions to address economy, trade and financial system risks**

Australia's financial system regulators are working to support financial market participants to manage the financial risks and opportunities associated with climate change. This includes improving understanding of the impact of climate change on the Australian economy and financial system and improving the transparency and consistency of sustainability-related information.

The Council of Financial Regulators' Climate Working Group completed a Climate Vulnerability Assessment for banks in 2022. This measured the potential impact of physical and transition risks to the five largest banks and broader financial system using scenario analysis. The next iteration of the Climate Vulnerability Assessment will examine access and affordability issues in general insurance.

The Reserve Bank of Australia and Australian Prudential Regulation Authority are also active members of the international Network for Greening the Financial System, contributing to the development of environment and climate risk management in the financial sector.

##### **Actions to drive investment in a sustainable economy**

The government is developing a Sustainable Finance Strategy to help mobilise private sector investment needed for a sustainable economy (The Treasury 2023b). Emissions reduction and adaptation are the initial priority for the strategy, with the reforms providing a platform to incorporate other critical sustainability-related issues over time. The strategy builds on the government's work to implement mandatory climate-related financial disclosure requirements for large companies and financial institutions.

The strategy identifies 12 policy priorities across 3 key pillars:

- 1) Improve transparency on climate and sustainability
- 2) Financial system capabilities
- 3) Australian Government leadership and engagement.

Each pillar contains a range of proposed tools and policies to support sustainable finance in Australia.

Almost all the policy priorities are highly relevant to adaptation as well as climate change mitigation. Of particular importance for future directions are priority 2 (develop a sustainable finance taxonomy), priority 7 (addressing data and analytical challenges) and priority 10 (catalysing sustainable finance flows and markets).

Sustainable finance taxonomies provide consistent, scientifically rigorous criteria to evaluate whether economic activities are aligned with or contribute to climate and other sustainability outcomes. The government is supporting the development of an Australian sustainable finance taxonomy as a key foundation of the Sustainable Finance Strategy, with an initial focus on climate



mitigation objectives. Building on feedback on sustainability data challenges and priorities for financial system participants, the Treasurer will request that the Council of Financial Regulators conducts a detailed assessment of options to address key sustainability-related data challenges faced by financial system participants. The Council is expected to publish recommendations to government by the end of 2024.

The government is also seeking feedback on what role the Clean Energy Finance Corporation (CEFC) can play to support scaling up of sustainable investment in Australia, as part of a more comprehensive and ambitious sustainable finance agenda.

### **Actions to address insurance issues**

The Hazards Insurance Partnership is an enduring partnership between the Australian Government and the insurance industry, managed by NEMA. Through the partnership, the government and insurers are working together to address insurance affordability and availability issues as driven by natural hazard risk, to reduce risk for communities and improve Australia's resilience to natural hazards.

Under the objective to reduce risk, with a view to improving insurance affordability and availability, the partnership will:

- identify and seek to better understand the most pressing insurance issues driven by natural hazard risk, to enable better targeting of policy solutions
- work to understand how insurance costs can be reduced, through risk mitigation
- consult on relevant programs and initiatives, including risk-reduction funding guidelines and consumer-facing improvements related to natural hazard insurance
- identify opportunities to replicate and scale successful initiatives
- streamline government data requests of the Insurance Council of Australia and insurance industry that are focused on natural hazard resilience and insurance affordability and availability
- collaborate to support the development of a centralised data asset on insurance affordability and availability.

Through the Partnerships' discussions, the insurance industry has provided valuable:

- advice on the implementation of the Disaster Ready Fund, and the Second National Action Plan
- discussion on the design of household mitigation programs, including a better understanding of the potential opportunities and challenges to reflecting mitigation in insurance premiums.

### **Actions to reduce risk from natural hazards**

Programs that reduce the likely human and financial impacts of disasters before they happen have wider social and economic benefits. This occurs through supporting the economic resilience of communities, such as enhancing the insurability of property and reducing insurance premiums.

As outlined in Chapter 1, the Second National Action Plan to implement Australia's National Disaster Risk Reduction Framework guides whole society, cross-sector efforts to reduce disaster risk. This includes embedding disaster risk reduction into investments and decisions.

The Australian Government is working to protect communities against the impacts of natural hazards through the Disaster Ready Fund, which is providing up to \$1 billion over 5 years (from 1 July 2023) for initiatives that support Australians to manage the physical, social, and economic impacts of disasters caused by climate change and other natural hazards. The government is also taking action through the Protect our Communities (Disaster Resilience) Program to deliver disaster resilience projects across Australia to improve their disaster resilience and preparedness.

## **Future directions**

The scale of projected climate change impacts across Australia means that significant resources will be required to adapt and build resilience. This cannot be achieved solely through public funding and highlights the need for government initiatives that incentivise individuals and the private sector to invest.

By shifting sufficient private capital towards initiatives focused on adaptation and resilience, investors can secure their established assets, unlock new investment opportunities and safeguard the long-term financial wellbeing of their beneficiaries. Box 6 provides an example of one such approach.

Catalysing private sector investment in adaptation and resilience at scale will require supporting data and understanding and addressing existing barriers. There are clear economic benefits to additional adaptation action, however there can be significant barriers to adaptation financing. For example, analysis undertaken for the United Kingdom's third Climate Change Risk Assessment found that many early adaptation investments deliver high value for money and that adaptation also often delivers important co-benefits, including direct economic gains. The benefit-cost ratios typically ranged from 2:1 to 10:1 – that is, every £1 invested in adaptation could result in £2 to £10 in net economic benefits (Watkiss 2022). Analysis commissioned for the UK Climate Change Committee on experience with adaptation financing, identified a range of barriers, and made recommendations related to markets and revenue, information, the development of 'bankable' projects (Watkiss 2022). In Australia, initial feedback to the department from stakeholders indicated that some see a potential role for the Clean Energy Finance Corporation in adaptation investment and the importance of developing the sustainable finance taxonomy, to incorporate adaptation as well as mitigation.

Stakeholders have emphasised that some relevant data is already collected by governments and the private sector. There is an opportunity for government-business collaboration to improve its use. This includes data around the climate risks for specific places, where assets are located and their current resilience.

Data about the climate exposure of housing would support more informed decision-making in property purchases. For example, mandatory disclosure of natural hazard information at point of purchase could assist both purchasers and financial institutions in considering and pricing future climate risks to their homes.

### **[Box 6]: Enabling Resilient Investment**

The Enabling Resilience Investment approach is a collaboration between CSIRO and Value Advisory Partners, with other partners also making significant contributions (CSIRO 2023).

The Enabling Resilience Investment approach is a planning and analysis process which incorporates value creation and systemic risk mitigation into the design and delivery of current and future investments. The approach generates place-based risk mitigation and adaptation options along with fundable opportunities that create beneficial outcomes (such as jobs, infrastructure, social cohesion, economic activity and incomes) for communities across Australia. In doing so, the approach supports communities, regions and economies to recover, transition, and develop towards sustainable, adaptive and disaster-resilient futures.

Over the coming years, the tools underpinning the approach will be further developed, as well as demonstrated and tested, in a range of strategic place-based case studies.

Several place-based case studies have been conducted, including the Bega Valley and Port Adelaide Enfield.

## **4.2. Infrastructure and built environment system**

The infrastructure and built environment system refers to the intricate networks of human-made structures across Australia. This system includes:

- physical buildings
- green and blue spaces
- supporting infrastructure such as transport, water, and energy systems.

This system has strongest interdependencies with the following systems: primary industries and food; regional and remote communities; and economy, trade and finance.

Climate change has many direct and indirect impacts through acute, chronic and slow onset changes which drive a variety of risks to this system, ranging from individual dwellings through to entire supply and service chains with local, regional, national and international implications.

### **4.2.1. What would mainstreaming adaptation look like?**

Mainstreaming and strengthening adaptation in the infrastructure and built environment system would include embedding climate risks and adaptation planning in land use planning policies, construction policies and building codes. Decisions around the location of new assets would incorporate future climate scenarios.

In a well-adapted Australia, new and existing buildings and infrastructure would be more resilient to the impacts of climate change, with a particular emphasis on the resilience of critical infrastructure and heritage places. Managing material climate risks would be a part of business as usual for the workforce, with decisions underpinned by high quality, useable climate information. For example, climate-ready design of buildings, infrastructure, equipment could take into account future temperature spikes, not just future temperature averages. Building and infrastructure regulations and standards could change over time to ensure that acceptable levels of safety and performance are maintained for assets as the intensity and frequency of natural hazards increases.

## 4.2.2. How do we get there?

### Action underway

Across the country there is a significant body of work underway relating to climate change adaptation in this system. Improving the climate resilience of infrastructure and our built environment is a shared responsibility. The owners of assets – whether private or public – are responsible for managing the climate risks to them. Each level of government has responsibilities for setting part of the standards and rules that govern the location and resilience of new and existing assets.

### Australian Government initiatives and partnerships

There are a number of frameworks and pieces of legislation that aim to improve climate resilience in the built environment:

- The *Security of Critical Infrastructure Act 2018* provides a framework for managing risks relating to critical infrastructure. The Act applies to critical infrastructure in the following sectors:
  - communications
  - financial services and markets
  - data storage and processing
  - defence industry
  - higher education and research
  - energy
  - food and grocery
  - healthcare and medical
  - space technology
  - transport
  - water and sewerage.
- The Critical Infrastructure Risk Management Program rules require owners and operators of certain critical infrastructure assets to identify and mitigate risks to their asset.
- The 2023 Critical Infrastructure Resilience Strategy, supported by the 2023 Critical Infrastructure Resilience Plan, guides work with critical infrastructure entities and all levels of government to enhance the security and resilience of Australia’s critical infrastructure.
- The National Construction Code sets out the minimum requirements for the design and construction of buildings in Australia. This includes for the safety, health, amenity, accessibility and sustainability of certain buildings. The most recent update to the code includes stronger requirements for dwellings to be energy efficient so they reduce energy consumption, reduce greenhouse gas emissions, and improve occupant health and amenity.
- The Trajectory for Low Energy Buildings was agreed by all Commonwealth, state and territory energy ministers in 2019. It is a national plan that aims to achieve zero energy and carbon-ready commercial and residential buildings in Australia. It is being updated in 2024.
- The Nationwide House Energy Rating Scheme (NatHERS) provides ratings of the energy performance of free-standing homes, townhouses and apartments and supports homeowners to design, build and renovate more sustainable, climate resilient homes. From

mid-2025 NatHERS will expand to offer ratings for existing homes and advise on how to improve energy performance.

- The National Australian Built Environment Rating System (NABERS) provides a similar role to NatHERS for the commercial building sector, in building energy efficiency as well as a range of other sustainability measures.
- The 2023 Infrastructure Policy Statement defines nationally significant land transport projects and identifies three strategic themes for Commonwealth infrastructure investment, one of which is productivity and resilience.
- Infrastructure Australia, the nation’s independent infrastructure advisor, maintains the Infrastructure Priority List. This provides Australia’s governments with a pipeline of investment-ready proposals expected to contribute to national productivity or to be otherwise socially beneficial. Infrastructure Australia’s Assessment Framework 2021 sets out guidance for the proposals that are submitted for potential inclusion on the Priority List. The framework’s resilience theme – including resilience to possible future physical climate risks – is not mandatory.
- The National Water Initiative is to be renewed to better meet the needs of Australia by strengthening the connection between climate science and water planning, driving water security for communities, the environment and industries and providing for increased influence for First Nations peoples in water management.
- The Water Efficiency Labelling and Standards scheme will be expanded to identify additional products which can help promote increasing urban water efficiency and water saving more broadly.
- The National Freight and Supply Chain Strategy is a holistic, coordinated and multi-modal approach to freight and supply chains agreed by all jurisdictions. It sets an agenda for government and industry action across all freight modes and includes actions relating to infrastructure.

Better energy performance supports adaptive capacity through multiple channels including improving the affordability of acquiring the desired level of thermal comfort from buildings. The Australian Government is:

- developing a Commonwealth-led National Energy Performance Strategy. This Strategy will provide a national plan to accelerate energy performance actions on the ‘demand side’ of energy markets, including energy efficiency, demand flexibility, electrification and fuel switching
- helping households, local councils and businesses access energy efficiency upgrades through the Energy Savings Package. This \$1.6 billion package includes:
  - \$1 billion to the CEFC to provide low-cost finance for home upgrades that save energy
  - \$300 million to support energy upgrades to social housing, co-funded and designed in partnership with the states and territories
- partnering with local governments to deliver the \$100 million Community Energy Upgrades Fund.

The Australian Government also has several programs that consider resilience in infrastructure and the built environment in response to climate change and disaster management. For example, the National Urban Policy will frame the Australian Government’s approach to achieving more liveable, equitable, productive, sustainable and resilient cities and suburbs. The State of the Cities report will complement this providing an accurate and up-to-date picture of life in our big cities.

The Australian Government also co-finances betterment funds to allow local governments and state agencies to rebuild essential public assets to a more resilient standard through the Disaster Recovery Funding Arrangements. Evaluation from Queensland’s fund indicates the clear benefits of a betterment approach (Queensland Reconstruction Authority 2023).

### **Other jurisdictions**

State and local governments are responsible for land use planning, which is a major determinant of the risk exposure of infrastructure assets.

In December 2022, the National Cabinet tasked Planning Ministers from all jurisdictions with developing a framework and guidance on nationally agreed principles for disaster and climate risk considerations in land use planning. In July 2023, Planning Ministers agreed to the New South Wales Government leading this work (Planning Ministers 2023). Several state and territory governments across Australia also have infrastructure strategies that consider climate change in the planning of infrastructure projects and support industry and businesses to build resilience to climate change through managing risk. For example, the Western Australia Government’s Coastal Hazard Risk Management and Adaptation Planning Guidelines, support the response to existing and potential future risk impacts from coastal hazards. The guidelines show how to assess risk levels at specific planning timeframes and outlines adaptation pathways to minimise risk and vulnerability across these timeframes.

Some local governments are undertaking infrastructure vulnerability assessments or are working to improve the resilience of community infrastructure. For example, Campbelltown City Council in Greater Adelaide is currently undertaking a ‘Cool Refuge Project’ to understand if there is a demand for cool places where people can go and spend time on hot days, and how these facilities might be provided so that they are effective and well-used by the community. The metropolitan Victorian Greenhouse Alliance has delivered a scoping study investigating the costs and benefits of climate change adaptation options for councils managing community assets across Greater Melbourne.

### **Future directions**

Future adaptation directions for infrastructure and the built environment are underpinned by investing in skills, capacity and capability development for relevant workforces and supply chains. Australia’s civil works and construction workforce will need to be equipped to deliver new resilient infrastructure and homes, and to retrofit current infrastructure and homes.

### **New assets**

Land use planning that considers natural hazard risk is the single most important risk reduction measure for limiting the increase in future disaster losses for new developments (AIDR 2020). The Australian Government is interested in hearing innovative ideas for addressing climate risk through land use planning, noting the primary responsibilities of state and local governments in this area.

There may be scope for cost-effective changes to the assessment requirements and standards for new infrastructure. For example, strengthening Infrastructure Australia’s Assessment Guidelines for climate impacts could be considered.

Several stakeholders have called for incorporating climate resilience into the National Construction Code. The Royal Commission into National Natural Disaster Arrangements recommended that an evaluation be undertaken to determine whether the Code should include increased natural hazard resilience as a specific objective. The Australian Building Codes Board is currently developing proposed changes for the National Construction Code in 2025, including to improve the resilience of buildings to certain natural hazards. In addition, some stakeholders have suggested strengthening NatHERS and NABERS star ratings to include embodied energy, heritage considerations and resilience standards.

### **Existing assets**

The starting point for responding to climate risks is for the owners of assets to have an up-to-date understanding of those risks. As outlined in section 3.3.2, recent and proposed new climate risk disclosure and management requirements for large listed and unlisted businesses, financial institutions and critical infrastructure will together provide the basis for management and monitoring of climate risks for a substantial part of Australia’s assets (The Treasury 2023c).

Collated information on the resilience of assets may also be beneficial. Some stakeholders have suggested Australia develop a nationally consistent asset register focusing on important risk and resilience characteristics and prioritising critical infrastructure in high hazard zones in Australia.

The 2024 update of the Trajectory for Low Energy Buildings will introduce a focus on existing buildings. Through consultation on the National Energy Performance Strategy in November 2022, stakeholders advocated for a shift in focus for the Trajectory from new to existing buildings, while also supporting National Construction Code updates for stronger minimum standards in the future. This could assist in improving the energy performance of existing and new commercial and residential buildings, to both reduce emissions while also improving thermal comfort and liveability.

Stakeholders have additionally emphasised the benefits of enhancing the usability of community spaces during periods of extreme weather, in particular heatwaves.

Others have highlighted opportunities to expand betterment policies, consistent with the productivity and resilience theme of the new Infrastructure Policy Statement, to build or repair land transport infrastructure after disasters to be more resilient. This could reduce total net fiscal costs and the impact of some disasters.

## **4.3. First Nations' values and knowledges system**

First Nations peoples’ relationship to land and waters extends beyond environmental concerns to encompass cultural, spiritual and holistic perspectives. The National Adaptation Plan will consider and integrate First Nations’ perspectives and will respect First Nations peoples’ rights to self-determination. It will also have dedicated consideration of First Nations’ values and knowledges, recognising that First Nations peoples’ knowledges and practices are connected to Country and cannot be taken out of context.

The First Nations’ values and knowledges system emphasises the importance of integrating First Nations’ values, knowledges and cultural practices, in understanding and responding to climate



change. This system recognises the deep connection of First Nations peoples to their land and waters, and the valuable insights this connection provides in terms of sustainable environmental management, observation of changes, and adaptation strategies.

This system has strong interdependencies with the following systems: natural environment; health and social support; and regional and remote communities. This includes concerns around topics such as the environment, water, health, infrastructure, and climate-adaptive housing.

Climate change has many direct and indirect impacts through acute, chronic and slow onset changes, which drive a variety of risks to this system, ranging from individuals through to entire First Nations communities, across multiple generations.

This system is underscored by the need for policies and actions that respect and incorporate First Nations' perspectives, values and knowledges systems. Risks to this system will have local, regional, national and international implications.

The assessment of risks to this system under the National Climate Risk Assessment is not yet complete. In 2024 the government will continue to support a First Nations-led process to identify the climate risks for the First Nations' values and knowledges system and prioritise and assess the most significant risks to underpin adaptation actions and strategies.

#### **4.3.1. What would mainstreaming adaptation in this system look like?**

Mainstreaming and strengthening adaptation action in this system would be underpinned by First Nations-led climate adaptation actions and partnerships. In a well-adapted Australia that respects the rights of First Nations peoples to self-determination, First Nations' values, sciences, practices and knowledges would be integrated into and potentially form the basis of, climate risk assessments, adaptation actions and opportunities. First Nations peoples and communities would be empowered to implement adaptation and mitigation planning, protect Country, participate in and benefit from changing economies, build capacity, and ensure climate action is informed by past experiences. Given the many interconnected impacts of climate change, there are opportunities for climate adaptation action to contribute to closing the gap of existing inequities between First Nations and non-First Nations Australians, particularly considering the strong link between caring for Country and the physical, emotional, cultural and spiritual health of First Nations peoples.

#### **4.3.2. How do we get there?**

##### **Action underway**

First Nations peoples are intimately connected to Country, and their knowledges, sciences and practices hold a number of the key solutions to the climate crisis (Heal Network and CRE-STRIDE 2021). In acknowledging human induced climate change, First Nations peoples and perspectives can help Australia reset or reframe its relationship with Country and support Australia's adaptation to climate change. Recognition of First Nations' values and knowledges, and empowering and partnering with First Nations peoples, can support place-based climate adaptation. These activities can also bring new jobs and investment to communities, whilst reinforcing connections to Country.

Some examples of action underway include:

- the inaugural Pacific Regional Gathering, hosted by Australia in October 2023, which saw Indigenous peoples and governments from across Australia, New Zealand and the Pacific, come together to discuss the impacts of climate change and how to achieve holistic solutions
- the 2018 National Indigenous Dialogue on Climate Change, the 2021 National First Peoples Gathering on Climate Change, and the subsequent 2022 formation of the National First Peoples Platform on Climate Change
- First Nations rangers across Australia, working with governments, jointly managed parks, and Indigenous Protected Areas, using First Nations’ knowledges, sciences and practices combined with western science, to prepare for, respond and adapt to the impacts of climate change
- First Nations peoples’ and communities’ contributions to government reports and analysis, including the 2021 State of the Environment report, which included an Indigenous-led theme and Indigenous co-authorship
- the Australian Government’s commitment of \$15.9 million to establish a climate centre focussed on the Torres Strait and Northern Peninsula Area. The purpose of the centre is to create a First Nations led, co-ordinated, regional response to climate change impacts.

## **Future directions**

First Nations peoples at the 2021 National First Peoples Gathering on Climate Change made a strong statement on climate change to guide future policy direction (reproduced on the following page) (NESP 2021).



## 2021 First Nation Peoples Statement on Climate Change

We, the participants attending the Gathering, acknowledge the voices of the Gimuy Walubarra Yidinji and Yirraganydji, whose lands we meet upon in 2021. Building on the 2018 statement from First Peoples on Yorta Yorta land, we as First Nation Peoples of Australia recognise that overwhelmingly scientific and traditional knowledge is demanding immediate action against the threats of climate change.

When Country is healthy, we are healthy. Our knowledge systems are interconnected with our environment and it relies on the health of Country. This knowledge is held by our Elders and passed on to the next generation. Solutions to climate change can be found in the landscapes and within our knowledge systems. Aboriginal and Torres Strait Islander peoples have the tools, knowledge, and practices to effectively contribute to the fight against climate change. We have lived sustainably in Australia for over 100,000 years.

First Nations people of Australia contribute the least to climate change, yet the impacts of climate change are affecting us most severely. We at the Gathering are calling for the following:

- A commitment from Federal Government to financially support an annual First Nations-led dialogue on climate change.
  - The annual dialogue should be a place where Aboriginal and Torres Strait Islanders can discuss the changing climate in their communities and is a valuable input to inform policy at all levels.
- A commitment for federal-level funding for an Indigenous-led climate action hub, which would fund both Indigenous-led mitigation and adaptation climate change projects. These projects could focus on:
  - Domestic emissions reductions through enabling reliable renewable energy supply to off grid communities, Indigenous-led nature-based solutions.
  - Indigenous-led adaptation planning for communities and the recording and transmission of knowledges and experiences across the country.
- The establishment of a Torres Strait Island taskforce, led by First Nations peoples of the region, to drive critical and tangible climate change solutions for island communities under present and immediate threat.
- We call on all Australians to join us in acting on climate change and in protecting the environment. To work collaboratively with us, learn our laws and our ways and respect our knowledges to find solutions together to combat climate change.
- Climate action that links all levels of government so our people and communities can work collaboratively in an Indigenous-led fight against climate change.
- The right to manage Country. First Nations peoples must be involved in the national dialogue about climate change and be engaged on any decision that impacts us and our Country. We call for these rights to be respected and observed on an international, national, state and local level. Our knowledge must be included in climate management frameworks.
- To look beyond ourselves, to include flora and fauna in climate planning and climate management frameworks so the plants and animals that support us can be represented.

We are seeing changes in the environment and the declining health of Country and people. We can see our native flora and fauna are suffering and the conditions of our lands, waters, seas and skies declining. For some of our people it is an emergency because the climate crisis has already caused widespread damage. Our connection to Country represents climate science developed over countless generations, listen to us, work with us and together we can enact a change that will shape our future for all Australians.

Since 2021, several of these actions have been initiated. However, more can be done to include and listen to First Nations' perspectives and incorporate First Nations' values and knowledges in all climate forums and decision-making processes (Creswell et al 2021).

Some stakeholders have noted that national conversations about climate change have not adequately included First Nations peoples; there are research and data gaps; and First Nations' knowledges are not included in the assessment findings of most reporting on climate change (Heal Network and CRE-STRIDE 2021). Stakeholders also noted that communities need support and dedicated resources to implement adaptation planning and protect Country in a manner that reduces existing inequities, consistent with Closing the Gap objectives.

Consultation has highlighted that First Nations peoples are calling for a holistic and urgent approach to climate adaptation that clearly recognises the value of First Nations' knowledges, sciences, practices and cultural expressions. Embedding these First Nations' perspectives into practices and policies, and establishing First Nations-led partnerships, will help see First Nations peoples throughout Australia being supported and empowered to increase their roles, responsibilities and contribution to climate adaptation.

#### **[Box 7] Consultation questions**

*What are some examples of First Nations-led adaptation action and partnerships? How can these actions and partnerships be better supported?*

*Along with First Nations peoples, who should be undertaking action to strengthen First Nations-led adaptation action and partnerships?*

*What are the barriers to strengthening First Nations-led adaptation action and partnerships? How could the plan help with these?*

*What First Nations-led adaptation actions and partnerships should be prioritised now to support medium-term (2050) and long-term (2100) adaptation?*

*What First Nations' knowledges frameworks can support measurement and evaluative tools and processes to track adaptation progress?*

*What are the biggest opportunities for First Nations peoples in the context of the National Adaptation Plan?*

## **4.4. Regional and remote communities system**

The regional and remote communities system refers to all (natural, social, economic, and built) aspects of communities in Australia that are beyond major urban centres. This system includes regional centres, towns, remote communities, mining settlements, small islands and external territories.

This system has strongest interdependencies with the following systems: natural environment; and First Nations values and knowledges.

Climate change has many direct and indirect impacts through acute, chronic and slow onset changes which drive a variety of risks to this system ranging from individuals and families through to entire

regional communities with local, regional and national implications. This system may potentially benefit from some opportunities arising from climate change, mainly through opportunities in the Primary industries and food system.

#### **4.4.1. What would mainstreaming adaptation in this system look like?**

Mainstreaming adaptation in regional and remote communities would be underpinned by building the resilience of many types of systems, from the physical resilience of ecosystems and infrastructure to the social capital that helps communities prepare for and recover from disasters. In a well-adapted Australia, local and regional planning would appropriately integrate adaptation decision-making, for example around direct resources such as water and common-use infrastructure. Physical infrastructure for regional and remote Australia would be more resilient to expected climate impacts. Robust, accessible regional climate projections and scenarios would inform regional planning for communities to manage their future risks together.

#### **4.4.2. How do we get there?**

##### **Action underway**

Many regional and remote communities are already adapting to a changing climate and demonstrating longer-term planning informed by climate risks in partnership with different levels of government.

##### **Australian Government initiatives and partnerships**

The Australian Government works in partnership with all levels of government to address the challenges and opportunities of regional and remote areas and support the equitable delivery of critical services. The government's Regional Investment Framework guides investment across government to support delivery of smart and responsible investment in the regions and help regions undergoing significant economic change to transition or adapt to specific structural challenges. Many of the programs discussed in other chapters will deliver adaptation benefits across both urban and regional Australia. There are a range of current Australian Government initiatives with a focus on improving economic and community resilience in regional and remote Australia, which present an opportunity to strengthen adaptation action. These include the:

- National Reconstruction Fund, which aims to support, diversify and transform Australian industry and the economy. This will help to drive regional development and secure jobs
- \$1.9 billion Powering the Regions Fund which provides dedicated support to ensure regional Australia can harness the economic opportunities of decarbonisation. This includes hydrogen and clean energy manufacturing
- Net Zero Economy Agency, which aims to promote a positive economic transition by helping workers and communities in Australia's regions and remote areas transition to a green economy
- Growing Regions Program which supports infrastructure that enhances liveability and prosperity in Australia's regions
- Regional Precincts and Partnerships Program, which aims to work with states and local councils in a nationally consistent way to invest in larger scale place-based projects aimed at transforming regional and rural centres

- Jobs and Skills Councils, which have been established as part of reforms to the Vocational Education and Training sector to develop skills and workforce solutions for their industries, bringing together employers and unions to work in partnership with governments and training providers
- Transition Support Network, which works with employment facilitators across Australia including the Australian Government Employment Facilitators. Employment facilitators focus on reskilling, upskilling and employment pathways for people in their region
- Water Infrastructure for Sustainable and Efficient Regions Initiative, part of the National Water Grid Fund, which supports construction of small-scale water infrastructure projects to deliver water security benefits to regional and remote communities, with a focus on maximising positive environmental outcomes.

Other programs which help with the resilience of critical infrastructure include the Better Connectivity Plan for Regional and Rural Australia, a 5-year, \$656 million package that will significantly improve mobile coverage in rural and remote communities. This program will improve mobile and broadband connectivity and resilience in rural and regional Australia. The benefits include that communities are more likely to maintain connectivity during disasters.

In addition, there are a number of measures to strengthen our response to escalating biosecurity risk in the Asia-Pacific region. These risks are likely to be exacerbated by climate change and the measures will help avoid the significant economic, environmental and social costs of pest and disease incursions, particularly for regional, rural and remote Australia. For example, the Department of Agriculture, Fisheries and Forestry is partnering with First Nations peoples through the Indigenous Ranger Biosecurity Program to protect Australia at the biosecurity frontline in remote and regional Northern Australia.

The Australian Government is also supporting a better distributed, resilient and skilled healthcare workforce, with a particular emphasis on remote and regional communities. This includes the following programs:

- Workforce Incentive Program
- Stronger Rural Health Strategy
- Indigenous Australians' Health Programme
- National Aboriginal and Torres Strait Islander Health Workforce Strategic Framework and Implementation Plan 2021–2031.

There are also new innovative models of primary care and placements being trialled in rural and remote areas. By addressing workforce maldistribution and shortages in regional and remote communities, these programs will assist in building community resilience and ensuring there is more equitable access to health services.

### **Other jurisdictions and sectors**

State, territory and local governments play critical front-line roles in adaptation planning and delivery in regional and remote communities, for example through land-use planning, development consent and asset management. Through climate strategies and action plans, local governments provide guidance on climate adaptation action and support communities in building resilience. In some very remote communities that are not within local government areas, a state government authority fulfils these roles.

The private sector also plays an active role in adaptation action in remote and regional communities, particularly in the built environment, through supporting adaptation planning, urban renewal projects, and measuring building resilience. For example, industry, academia and government are collaborating in research projects that will inform how regions can most effectively adapt to climate change. This includes initiatives such as cyclone testing stations, and climate-proofing Australia's infrastructure. Outcomes of these projects will inform policy advice to the Australian and state and territory governments.

## **Future directions**

Regional and remote communities are resourceful and accustomed to natural hazards and a variable climate, however, further investment and planning will be required to be well adapted for the future climate.

For all levels of government there is an opportunity to consider how existing programs and planning supports regional communities in incorporating future climate and adaptation objectives. This will ensure existing investment is well targeted and the full benefits of regional transformation can be realised for communities. For example, comprehensive climate risk assessments being incorporated into decision making for regional infrastructure investments could help ensure climate risks over the life of the investments are considered at the outset.

The resilience of local communities influences the lives and livelihoods of the communities themselves as well as other areas of the economy such as the resources or tourism sectors. The ability and capacity for local governments and the private sector to adapt to climate change is critical for enabling community resilience. As the climate changes, and many regions become hotter and drier, the economic underpinnings of those communities are likely to shift. For some types of activity, such as mining and agribusiness, there may be opportunities to locate the workforce elsewhere and alter working patterns to accommodate a changing climate. For tourism, slow-onset climate impacts such as rising temperatures may make some destinations less attractive to visitors for larger periods of the year. This means some regions may need to consider diversifying sources of economic activity in addition to varying the nature and timing of tourism activities themselves.

Jobs and Skills Councils will consider regional and remote communities' training and workforce needs as they progress key elements of workforce planning and training product development to meet the evolving needs of their industries. The Transition Support Network has the capacity to support workers through changes to the economy resulting from climate adaptation. These programs will assist rural and regional communities with workforce and industry transitions.

Thriving, connected communities are important for recovering from disasters. There may be opportunities to further support successful local level and community driven initiatives to build and maintain social infrastructure. There are future opportunities to educate and engage local communities on climate impacts and local adaptation actions, regional planning and decision-making.

## **4.5. Health and social support system**

The health and social support system refers to population health and wellbeing, as well as the provision, availability, and access to health, wellbeing and social services. This system includes services that encompass:

- healthcare

- public and preventative health
- aged care
- disability services
- housing support
- employment and financial wellbeing
- supporting infrastructure.

This system has strongest interdependencies with the following systems: regional and remote communities; infrastructure and the built environment; and First Nations values and knowledges.

Climate change has many direct and indirect impacts through acute, chronic and slow onset changes which drive a variety of risks to this system. Many of these risks are unevenly distributed, both geographically and demographically. Risks to this system have local, regional and national implications.

#### **4.5.1. What would mainstreaming adaptation in this system look like?**

Mainstreaming adaptation in the health and social services system would see population health protected and provide Australia with a more climate-resilient system to promote the health of Australians. A climate-resilient health system would include improved capacity to identify, prevent and manage climate-related health impacts. Social services could be enhanced to accommodate the impacts of a changing climate, particularly for people in vulnerable situations. A well-adapted Australian health and social services system would be informed by the best available data, evidence and research, and support healthy, climate-resilient communities.

Positive health and social outcomes are impacted by factors beyond the health and social support system. For example, policy interventions in housing and infrastructure, the agriculture and food system, urban planning and infrastructure can all meaningfully contribute to health outcomes.

#### **4.5.2. How do we get there?**

##### **Action underway**

Improving the climate resilience of the health and social support system is a shared responsibility. The Australian, state and territory, and local governments have responsibilities for different aspects of the system, which features a mixture of public and private sector providers.

##### **Australian Government initiatives and partnerships**

The Australian Government has recently released Australia's first National Health and Climate Strategy (DoHAC 2023). The strategy sets out a whole-of-government plan for addressing the health and wellbeing impacts of climate change, while also addressing the contribution of the health system to climate change. The strategy encompasses public and preventive health, primary and secondary health care and aged care. The strategy outlines priorities over 5 years, as well as an ongoing program of work that will continue in the decades to come.

The strategy's vision is 'healthy, climate-resilient communities, and a sustainable, resilient, high-quality, net zero health system'. The strategy includes specific actions across health and other sectors to build a climate-resilient health system and protect population health and wellbeing from the impacts of climate change. One of these actions is developing a National Health Adaptation Plan as part of the National Adaptation Plan. Other adaptation-related actions in the strategy include:



- developing guidance and implementation support tools to enable state and territory, local, and Aboriginal Community Controlled Health Services to undertake climate risk assessments and develop adaptation plans
- exploring options to develop a framework for routine data collection, monitoring and reporting on the association between climate-related exposures and climate-sensitive health outcomes
- building the resilience and availability of primary care during and after climate-related disasters and extreme events, including by strengthening the role of Primary Health Networks
- developing and publishing a National Heat-Health Action Plan which promotes a nationally consistent approach to minimising the health impacts of heat
- improving and promoting mental health initiatives aimed at increasing social community connectedness to help build longer-term resilience in communities before, and after, climate-related disasters and extreme weather events.

The National Health and Climate Strategy complements the priorities outlined in the National Preventive Health Strategy 2021–2030 and other existing government initiatives (DoHAC 2023). For example, the strategy states that the government will consider the impact of climate change in its implementation of the National Preventive Health Strategy. This includes recognising the role of preventive health in building population and health system resilience to the health impacts of climate change.

The Australian Government has also released the National Disaster Mental Health and Wellbeing Framework, which provides guidance to recovery workers in supporting the mental health and wellbeing of disaster affected communities (National Mental Health Commission 2024). The framework will be implemented in collaboration with state and territory governments. Together with the forthcoming National Mental Health Plan for Emergency Services Workers, the framework will support actions under the National Health and Climate Strategy to strengthen the capacity of health systems to prepare for, respond to, and recover from climate related disasters and extreme weather events.

### **Other jurisdictions and sectors**

State, territory and local governments have developed a wide range of plans and strategies to address the health and wellbeing impacts of climate change and build the climate resilience of health, wellbeing and social support services. For example, the Queensland Government Climate Risk Strategy 2021–2026 and Climate Change Adaptation Planning Guidelines outline the state’s plan to adapt to climate change impacts and foster a climate ready and environmentally sustainable public health system. The Western Australian Government is also developing a climate adaptation plan, following the Climate Health WA Inquiry’s review of the existing planning and response capacity of the health system to the impacts of climate change (Weeramanthri et al. 2020). The inquiry has made recommendations to improve Western Australia’s climate change mitigation and public health adaptation strategies.

There are several significant research initiatives on climate change and health in Australia. These include the Healthy Environments and Lives Network, the MJA-Lancet Countdown on Health and Climate Change, and the work of the Monash Sustainable Development Institute.

## Future directions

The department and the Department of Health and Aged Care will work closely together to ensure the National Adaptation Plan and the National Health Adaptation Plan are informed by the 2023 consultations to develop the National Health and Climate Strategy. The National Adaptation Plan and the National Health Adaptation Plan will progress action on priorities identified in the Strategy, for example in the areas of preventive health, workforce, and communications (discussed below).

In early consultation on a National Adaptation Plan, stakeholders highlighted the need for strengthened adaptation across several dimensions of the health and social support system. The National Health and Climate Strategy addresses a number of these areas. Stakeholders have also noted the need to build resilience in the health workforce and support health system workers and the public to understand climate-related health risks. These two areas – workforce, leadership and training; and communications and engagement – are two of the four identified ‘enablers’ in the National Health and Climate Strategy.

Stakeholders noted the need to build resilience in the health workforce and to support health workers and the public to understand climate-related health risks. The National Health and Climate Strategy will support and engage the health and aged care workforce to further develop the capacity to raise public awareness and understanding of the health impacts of climate change and take action to address these impacts. It will also support the workforce to strengthen the resilience of health services in providing care to affected populations.

The strategy also outlines plans to design and deliver publicly available guidance on key opportunities to build resilience to the health impacts of climate change, including a focus on actions patients and healthcare workers can take directly.

Stakeholders have noted that ambient air quality thresholds set by states and territories are general and may not sufficiently account for heightened activity levels involved in labouring outdoors. The 2023 Intergenerational Report (The Treasury 2023a) noted that labour-intensive occupations, where outdoor daytime work is common, are likely to be more heavily impacted by extreme heat. This includes labourers, technical and trades workers, and machinery operators. There may be scope for developing guidance or thresholds specific to priority populations or occupations.

## 4.6. Natural environment system

The natural environment system refers to Australia’s ecosystems, biodiversity, and natural processes. This system includes:

- the ocean around Australia (covering the Exclusive Economic Zone and sub-Antarctic islands)
- coastal areas and shorelines
- the natural environment that is not part of urban or agricultural zones (with some overlap), such as national parks, rangelands, grasslands, forests and bushland and other natural landscapes.

This system underpins all other systems and has strongest interdependencies with the following systems: primary industries and food; regional and remote communities; and First Nations values and knowledges.

Australia has a wide variety of natural environments, all of which are at risk from climate impacts. Climate change has many direct and some indirect impacts through acute, chronic and slow onset

changes which drive a variety of risks to this system. These range from individual species through to entire landscapes with local, regional, national and international implications.

#### **4.6.1. What would mainstreaming adaptation in this system look like?**

In a well-adapted Australia, environmental and heritage values would be embedded in policies and management decisions made across protected areas and a range of other land and marine uses and land tenures. Adaptation planning and actions could be integrated into planning and management at the site, landscape and regional level. Where possible these plans would draw on robust, accessible climate information and scenarios provided at scales relevant for planning decisions. Recognising the critical role of biodiversity and nature for a healthy prosperous economy – and integrating this consideration into decision-making – could underpin adaptation in the natural environment system.

Given the inherent complexity and uncertainty of climate impacts on natural ecosystems, adaptation action would first build on no-regret activities and monitor ecosystem and species changes to drive continuous improvement and adaptive decision-making. Adaptation planning and management would be undertaken in partnership with local communities and relevant First Nations decision makers.

All jurisdictions and sectors of Australia’s economy and society would innovate and embed climate adaptation into their core business, building our capacity to preserve biodiversity and key ecosystem functions at a national scale.

#### **4.6.2. How do we get there?**

##### **Action underway**

##### **Australian Government initiatives and partnerships**

The Australian Government is developing and implementing policies and programs to contribute to building the resilience of Australia’s environment and heritage. Some key policies and programs include:

- Australia’s Strategy for Nature, which is currently being updated to include ambitious national targets which will guide biodiversity action until 2030
- the Natural Heritage Trust, which is the Australian Government’s primary investment platform for environmental protection, sustainable agriculture, natural resource management, and the management of World Heritage sites that have natural heritage values
- the *Nature Repair Act 2023*, which establishes a framework for a world-first national, voluntary, legislated biodiversity market. The Nature Repair Market will enable private finance to help to repair and protect our unique natural environment and will reward landholders for protecting biodiversity
- the Nature Positive Plan, which sets out the government’s commitment to reform Australia’s environmental laws to better protect, restore and manage our unique environment and heritage. The plan includes a commitment that regional plans, strategic assessments and other strategic planning consider climate change and include environmental adaptation and resilience measures

- the Blue Carbon Conservation, Restoration and Accounting Program, which implements carbon restoration, scales up investment in coastal blue carbon ecosystems, and quantifies improved outcomes for climate, biodiversity and livelihoods
- the Reef 2050 Long-Term Sustainability Plan, which is a partnership between the Commonwealth and Queensland Government that establishes the overarching framework for protecting and managing the Great Barrier Reef
- the Reef Restoration and Adaptation Program, a consortium of experts to create an innovative suite of solutions to protect and build the resilience of coral reefs
- Australia’s Sustainable Ocean Plan, currently under development, will set a new shared vision for our ocean to 2040 and identify actions to grow our ocean economy sustainably now and into the future, underpinned by a healthy ocean
- the Basin Plan 2012, implementation of which will ensure there is sufficient water for the Murray-Darling Basin environment to be more resilient to the impacts of climate change
- the Great Artesian Basin Strategic Management Plan (2019), implemented to ensure long term water security for water users and the natural springs of the Great Artesian Basin
- the Threatened Species Action Plan which maps a pathway to protect, manage and restore Australia’s threatened species and strengthen adaptive capacity for priority threatened species and places
- a commitment to protect and conserve 30% of Australia’s land and 30% of Australia’s oceans by 2030, including increased funding to expand the Indigenous Protected Areas Program
- the National Representative System of Marine Protected Areas that includes 62 Commonwealth-managed marine protected areas and covers 48% of Australian waters
- the National Seed Bank which conserves and researches Australian native seeds, assisting with the conservation of threatened species and restoration potential for damaged ecosystems
- the Climate Action for World Heritage through Capacity Development Project, working with the United Nations Education, Scientific and Cultural Organization World Heritage Centre and World Heritage Advisory Bodies to build capacity to better respond to climate change impacts on World Heritage properties
- the Climate change toolkit for Australia’s World Heritage properties, developed by CSIRO, which provides a framework for property and environmental managers to undertake climate risk and vulnerability assessments and adaptation planning

### **Other jurisdictions and sectors**

Significant adaptation work is also being done by state, territory and local governments in their role managing landscapes and natural assets. Some of the work underway includes the:

- South Australian landscape scale conservation program ‘Bounceback’, which aims to protect and restore the semi-arid environments of the Flinders, Olary and Gawler ranges in the SA Arid Lands region

- Queensland Threatened Species Program, which provides a framework for conserving Queensland’s most vulnerable flora and fauna species
- NSW Office of Environment and Heritage funded Climate-ready Revegetation Program, which compiles a list of suitable species to assist natural resource managers to identify appropriate tree species for revegetation projects
- Western Australian Department of Water and Environmental Regulation’s program to upgrade river and rainfall monitoring technology and better improve monitoring and management of the Fitzroy and Margaret River catchments
- NSW National Parks and Wildlife Service’s *Carbon positive by 2028*, a plan to be carbon positive by reducing their operational footprint and increasing carbon sequestration.

Many local governments are also taking valuable and practical adaptation action to halt degradation and to improve the resilience of natural landscapes and improve conservation values. For example, the Sunshine Coast Council's Blue Heart is an adaptive floodplain restoration project developed through a partnership between the Kabi Kabi First Nations community, government, researchers, and landholders to regenerate wetlands, move farmers away from storm-surge prone coastal areas, and provide flood storage. The project benefits tourism, the environment and caring for Country. Other examples from local governments include:

- establishing local vegetation corridors to protect and restore connectivity and improve pollination
- urban tree planting to increase lost tree canopy and improve biodiversity coverage
- removing concrete from urban waterways to reduce flood risk and increase habitat.

Community organisations, research bodies and the private sector are also implementing important and innovative adaptive activities. For example, the University of Tasmania is conducting research on prescribed burning and mechanical treatments to better manage bushfire.

## **Future directions**

Due to the scale of anticipated climate change impacts across Australia, significant resources will be required to build the resilience of Australia’s natural assets. This cannot be achieved solely through public funding. Catalysing private sector investment in climate-smart nature repair and nature-based solutions will require action from government, private landholders, communities and the finance sector. For example, robust regulatory frameworks and up-to-date climate scenarios and projections are needed to give the broader financial services sector confidence in longer-term projects.

The National Adaptation Plan could identify opportunities to better embed adaptation action across existing government policies, programs and funding streams. This could include embedding specific adaptation actions within planning and landscape-scale approaches under national environmental law, future carbon credit schemes and Australia’s Strategy for Nature. To be successful, adaptation planning for nature at all levels of government will need to consider other pressures and impacts on the natural environment in addition to those from climate impacts.

In addition to embedding adaptation across existing nature-related laws and policies, there are opportunities to better embed nature in adaptation and planning. For example, building the resilience of coastal and marine habitats can enhance ecosystem function and support cultural and recreational use. It can also buffer coastal landscapes and communities from the worst impacts of climate-related hazards like storm surges. The Sustainable Ocean Plan and Nature Repair Market

(both currently under development) have the potential to stimulate more innovative adaptation actions that use nature-based solutions to improve efforts to address cross-sectoral climate risks.

There are significant climate-related risks to the country's environmental and natural resources that go across and beyond state and territory boundaries. In early consultation, stakeholders stressed that the National Adaptation Plan has an important role in providing a nationally consistent approach to nature conservation, with clear roles, responsibilities and alignment for all actors.

## **4.7. Primary industries and food system**

The primary industries and food system refers to land, marine, and estuarine commercial activities dedicated to producing food, fibre, wood, fuel and other products. This system includes agriculture, aqua and mariculture, fisheries and forestry sectors. They span large-scale and smallholder operations, both commercial and non-commercial, and cover the entire chain from extraction to the consumer.

This system has strongest interdependencies with the following systems: regional and remote communities; and economy, trade and finance.

Climate change has many direct and indirect impacts through acute, chronic and slow onset changes which drive a variety of risks to this system. These range from individual crops through to entire industries and communities with local, regional, national and international implications. This system may potentially benefit from some opportunities arising from climate change.

### **4.7.1. What would mainstreaming adaptation in this system look like?**

In a well-adapted Australia, our food system would support a food secure nation and feature socially, environmentally, and economically sustainable businesses that continue to provide for ourselves and others. Effective adaptation would enable Australia to overcome the risk that agricultural productivity growth is outpaced by the impacts of climate change. This may result in Australian farmers deciding to change the locations, technologies and approaches of food production, to enable a long-term resilient and diversified food system, and to protect against distribution changes or supply shocks. Both profitability and volumes may be under downward pressure for some products and parts of Australia because of climate impacts. Maintaining food security, affordability and sector profitability will present complex challenges that will need to be addressed through considered solutions developed and implemented in partnership with the agricultural sector. Mainstreaming adaptation could include building environmental, social and human capital by increasing knowledge, skills and capability, and by increasing collaboration to support the transformative approaches required to address future climate risks. A resilient agricultural sector will ensure Australian producers remain profitable and competitive with international producers that will also be impacted by climate risks.

## 4.7.2. How do we get there?

### Action underway

#### Australian Government initiatives and partnerships

Agriculture has an important role to play in reaching Australia’s net zero goals – both as a sector with emissions, but also as a potential source of carbon sequestration through management of large areas of land.

The Australian Government is working with the primary industries and food sector to build climate resilience and increase uptake of climate-smart, sustainable practices through a range of national programs and initiatives, including:

- the *National Statement on Climate Change and Agriculture*, which presents a unified vision and shared commitment by the country’s agriculture ministers to work in partnership with the sector on climate change and agriculture
- the Agriculture and Land Sectoral Plan, which is one of 6 sectoral decarbonisation plans being developed to support Australia’s 2035 national emissions reduction target and a 2050 Net Zero Plan
- the National Drought Agreement with states and territories, and an Australian Government Drought Plan improve drought preparedness and resilience, both of which will be finalised in 2024
- the \$5 billion Future Drought Fund, a long-term investment in drought resilience, from which \$100 million is made available each year to support drought resilience investments. The fund helps farmers and their communities better prepare for drought and build climate resilience
  - the fund’s Climate Services for Agriculture program, delivered in partnership with the CSIRO and Bureau of Meteorology, provides free climate information for farmers and farm advisers through tools
- the National Soil Strategy, which sets out how Australia will value, manage and improve its soil for the next 20 years to achieve a more sustainable future and help build more resilient agricultural communities
- the Climate-Smart Agriculture Program, funded under the Natural Heritage Trust, which is providing \$302.1 million over 5 years from 2023–24 to 2027–28 under multiple investment streams for climate-smart, sustainable agriculture investments. The Climate-Smart Agriculture Program will support Australia’s agriculture sector to be positioned for sustainable growth in a changing climate and to contribute to environmental and public good outcomes
- the Australian Agricultural Sustainability Framework, led by the National Farmers’ Federation in partnership with government. The framework is progressing a science and data-led approach to develop internationally recognised best practice for making, verifying, and tracing sustainability claims. This will help consumers, policy makers and the wider public have reliable information on the sustainability impacts of agricultural products, operations and supply chains

- the *National Biosecurity Strategy 2022–2032*, which sets out a collective vision for Australia’s future biosecurity system, including changing and increasing biosecurity risks due to climate change
- the Indigenous Rangers Biosecurity Program, a Commonwealth initiative to strengthen biosecurity data collection, profiling and surveillance, with unique traditional knowledge and skills
- the 15 Rural Research and Development Corporations which focus on research, development and extension activities of priority issues for the agricultural sector, including new technologies and production practices that are adaptable to a changing climate.

### **Other jurisdictions and sectors**

State and territory governments undertake a range of actions that support communities, industries, businesses and the environment to build resilience and adapt to climate change by managing risk and harnessing opportunities. Example projects include:

- analysis of potential climate change impacts and adaptation strategies for a range of primary industries in New South Wales
- a Drought and Climate Adaptation Program in Queensland
- the Australian Capital Territory’s rural resilience grants to support improved farm and landscape resilience.

Locally based adaptation plans and initiatives are also in place to support communities, businesses and individuals to adapt to, and mitigate the economic, social and environmental impacts of climate change.

Mulloon Institute’s research is an example of government and private sector collaboration that focuses on innovative land management approaches to create healthier landscapes with more resilience to climatic extremes. By supporting transformational change in the way landscapes are managed, the institute’s work benefits Australia’s farmers and communities.

The Australian agricultural sector has been at the cutting edge in preparing and adapting to climate related risk and opportunities by investing in innovation, technology and improved land and resource management practices. Notable examples include improving water-use efficiency, conservation tillage and soil amelioration to maximise soil moisture, shifting to cropping in higher rainfall areas, using climate prediction tools, and adopting biosecurity measures to mitigate against plant and animal diseases.

### **Future directions**

Australian agriculture is a global leader in adaptation and resilience. However, changes to future climate conditions may reduce the effects of existing adaptation activities and make production harder for the sector. The development of readily available and understandable climate information, agricultural research and development, and the monitoring and evaluation of drought policy, have the potential to better prepare farmers with tools to handle a more uncertain future.

Climate risks that challenge current productivity and adaptive capacities will require governments and industry leaders to partner with producers to plan and deliver much longer-term transformative change. For example, Australian specific research, innovation and technologies, changes to farm



structures and the adoption of improved sustainability practices have the potential to help farmers adapt to a changing climate and more extreme weather. Continuing to recognise further co-benefits for mitigation and sustainability will also be key and can help incentivise adaptation action.

Findings from global climate and agricultural models suggest other countries in our region may be even more affected than Australia. This could result in heightened demand for Australian agricultural exports over time, assuming the sector is able to position itself – for example, through adjusting the types of crops grown in certain regions.

The next phase of the Future Drought Fund provides further opportunities for investing in adaptation and resilience. While drought preparedness and resilience are the legislated focuses of the fund, it also considers broader and interconnected climate risks to support climate resilience outcomes. A Drought Resilience Funding Plan (2024–28) is being developed to provide a high-level framework to guide program funding decisions. A Future Drought Fund Investment Strategy is also being developed to provide detailed information about the delivery of programs and activities from 2024 to 2028. It will address key Productivity Commission recommendations for transformational change, provide clarity about planned investments, and facilitate better planning and coordination of programs, including to the broader drought and climate resilience initiatives.

There are opportunities to build on the achievements to date to further strengthen the development and adoption of existing and new technologies and practices. Targeted long-term investment in research, development and extension could assist the development of further successful adaptation action and outcomes, for example in improved water efficiency for irrigated cropping. This can incentivise adaptive practices, data sharing to support informed decision-making, and support proactive risk management.

In recent years, consumers in Australia and overseas markets have started shifting their preferences to ensure food meets sustainable and ethical standards and have become increasingly concerned about climate change impacts and animal welfare – and producers are responding to these changes. Expectations around sustainability and emissions are also increasing in capital markets and supply chains, and many large agricultural and food corporations are setting reporting requirements accordingly. While affordability is a concern for many consumers, there may be opportunities for consumers to pay sustainability premiums in some markets. These trends will provide the impetus for the sector to seize opportunities to maximise water efficiency, reduce food waste along the entire supply chain, and transition to more sustainable processing technologies and practices.

In the context of a changing climate, and as many bush foods are already well adapted, there may be opportunities to invest and foster the bush foods industry, drawing on First Nations' knowledges and investing in First Nations businesses. There is also an opportunity to further draw on the wealth of First Nations' experiences in sustainable land management practices and apply them in the context of primary production.

Stakeholders have been clear that engagement and collaboration is another key issue that affects adaptation action. On the national scale, there are challenges connected with policy fragmentation and stakeholders have emphasised the need for a joined-up approach across governments.

## 4.8. Defence and national security system

The defence and national security system refers to the structures and functions dedicated to safeguarding Australia's domestic stability and international interests, including disaster readiness and risk reduction. This system includes:

- all emergency management services, and their workforce and volunteers
- defence operations and workforce
- the role of the military in disaster response
- geopolitical tensions arising from extreme events.

This system has strongest interdependencies with the following systems: health and social support; economy, trade and finance; and infrastructure and the built environment. As outlined in Chapter 1, the National Adaptation Plan will complement, rather than duplicate, emergency management services. This section does not reproduce the substantial efforts underway as outlined in the Second National Action Plan.

Climate change has many direct and some indirect impacts through acute, chronic and slow onset changes which drive a variety of risks to this system ranging from responding to localised extreme events through to issues of national security with local, regional, national and international implications.

### 4.8.1. What would mainstreaming adaptation in this system look like?

Mainstreaming adaptation for the national security system means integrating climate adaptation considerations into government decision-making on national security matters.

In a well-adapted Australia, planning for disaster management services would be informed by long-term climate risk information. There are opportunities to design disaster management services to be supportive of other defence and national security priorities. Critical infrastructure managers and those delivering essential services would use climate risk information to inform contingency planning. Implementing long-term adaptation measures could reduce the risks of climate change impacting service delivery. Investments and management of defence and national security assets should consider long-term climate impacts as part of an all-hazards approach to resilience. This may be particularly important for major capability projects with extended delivery and operational timeframes.

Within the Indo-Pacific region, a well-adapted Australia would continue to support regional climate resilience and adaptation and be a strategic partner of choice on climate adaptation and supporting regional resilience.

### 4.8.2. How do we get there?

#### Action underway

Australia is working to address national security threats through a whole-of-nation effort. While defence and national security are Australian Government responsibilities, adapting to climate change is a responsibility shared with others, particularly owners and operators of critical infrastructure assets. Defence, Home Affairs and the National Intelligence Community include climate-induced national security issues in their strategic analysis, outlook and planning.

The findings of the independent Defence Strategic Review recognised climate change as a national security issue with significant implications for Australia and the Indo-Pacific region. The Australian Government has agreed in principle to two climate change adaptation recommendations from the review:

- The Commonwealth should work with the states and territories to develop national resilience and response measures for adverse climate change at the local level without the need for Australian Defence Force support, except in the most extreme emergencies.
- Defence should be the force of last resort for domestic aid to the civil community, except in extreme circumstances.

In support of these recommendations, the Australian Government is exploring options to support state and territory led domestic crisis response efforts. These options will be informed by a comprehensive public consultation process, including sectoral and industry roundtables, state and territory engagement, and submissions to a public discussion paper.

The National Resilience Taskforce, within the Department of Home Affairs, is currently identifying and assessing climate impacts and risks to national security. The Taskforce is developing policies to address critical national security vulnerabilities arising from or exacerbated by climate change. As outlined in Chapter 1, the Taskforce is also developing a National Resilience Framework that will link existing and forthcoming plans, strategies, and frameworks. It will articulate how the government's approach and policy architecture enables national resilience, including through the government's climate adaptation and disaster risk reduction agendas.

Efforts are underway to reduce dependency on foreign fuel supplies, including in our military capabilities. Measures include increasing stockpiles, incorporating biofuels and increasing electrification in the transport sector. This will also bolster economic resilience against external supply chain shocks, including those impacted by climate change.

On the international front, there is a growing need for diplomatic and aid budgets to support countries in the region to prepare for natural hazards. Australia is working with regional partners to help them build their resilience and adaptation efforts. We are increasing investments in climate change adaptation as part of our overseas development assistance. From 2024–25, at least half of all new bilateral and regional investments valued over \$3 million will have a climate change objective, with a goal to reach 80% in 2028–29.

## **Future directions**

The world is facing a new era of competition among countries for resources and economic advantages. This is causing new international pressures and domestic impacts, which Australia will need to manage. Priorities for the Australian Government are securing our energy supplies, managing the economic transition to a net zero economy, and establishing Australia as a renewable energy superpower.

Australia's expertise in renewable energy transition and climate change adaptation can help build partnerships and stability in our region and prepare for unexpected challenges. Working with communities to undertake these activities can strengthen social capital and cohesion and develop resilient communities. Supporting our Pacific neighbours at this critical time will also strengthen Australia's interests and partnerships in the region.

Climate is a growing focus within our major security partnerships, including through high-level discussions at the Australia-United States Ministerial Consultations (AUSMIN) and the Australia-UK Ministerial Consultations (AUKMIN). At AUSMIN in 2022 and AUKMIN 2023, partners agreed to establish Senior Officials’ meetings. This agreement enables information sharing on national and regional security risks posed by climate change.

# Appendix A: International examples of national adaptation planning

National-level adaptation planning is becoming increasingly common across the globe as countries develop national adaptation plans to identify and document medium and long-term adaptation strategies against the threats and hazards posed by climate change. This activity will increase over coming years as countries implement targets from the Global Goal on Adaptation agreed at international climate negotiations in late 2023. Nearly all 38 OECD countries have a national adaptation plan or national adaptation strategy (some have both), while 50 developing countries have published a national adaptation plan.

This appendix analyses the key attributes of the adaptation planning approaches of Canada, Germany, New Zealand, Spain and the United Kingdom. These countries were selected for comparison given their relevance to Australia in terms of population, geography, OECD status, economic size or federalist system of government. Key attributes of national adaptation plans and associated documents for these countries are detailed in Table A1.

The countries examined have varying levels of experience with adaptation planning. New Zealand and Canada's first national adaptation plans were published in the last 2 years. Germany and the United Kingdom have both published their third national adaptation plans which represent over a decade of adaptation planning and review. The duration of national adaptation plans varies, however a period of around 5 years is the most common. Spain's national adaptation plan has the longest duration – 10 years – however it is broken down into 2 separate 5-year workplans.

Structurally, there are different approaches to documenting adaptation planning. Germany and Canada have developed and published overarching adaptation strategies to provide higher-level strategic blueprints or policy frameworks for their adaptation plans. Other countries have included this strategic context at the beginning of their national adaptation plans. In 3 of the 5 plans considered here, national adaptation plans are informed by a national climate risk assessment. In the cases of New Zealand and the UK, the timing of the climate risk assessment is aligned to the review and development phase of the adaptation planning cycle, to inform priority areas of adaptation activity.

The development of national adaptation plans is legislatively mandated in Spain, New Zealand and the United Kingdom. The European Climate Law does not mandate national adaptation planning, however, it does encourage members to adopt comprehensive national adaptation strategies and plans. In 3 of the 5 countries considered here the relevant climate change legislation is used to specify further elements of adaptation planning. For example, the New Zealand legislation assigns the responsibility for the development of the national climate risk assessment to an independent body.

Regarding reporting on adaptation planning, the German and Spanish examples use mid-cycle reports, while Canada's adaptation plan commits to an end-of-plan review. In the case of both New Zealand and the United Kingdom, the relevant climate change legislation assigns the responsibility for biennial monitoring and reporting to an independent body. In the case of New Zealand, the

responsible Minister is required to publish the independent report and respond in writing within 6 months.

Table A1: A sample of national adaptation planning approaches

Country	Documents	Scope	Adaptation action prioritisation	Duration (years)	Last published	Legislative basis	Monitoring & reporting
United Kingdom	<a href="#">National Adaptation Programme</a>	Establishes the basis for adaptation action over 5 years.	The UK's <i>National Adaptation Programme</i> responds to 61 risks and opportunities identified in the risk assessment grouped against 5 domains.  <i>The National Adaptation Programme</i> outlines an adaptation vision for action, using the following key elements 1) setting the appropriate framework; 2) leveraging major government programmes and private investment; 3) developing evidence and information; and 4) coordinating action through governance and engagement.	5	2023	<i>Climate Change Act 2008</i> ( <a href="#">Climate Change Act 2008 (legislation.gov.uk)</a> )	Biennial evaluation by the independent Climate Change Committee.
	<a href="#">Climate Change Risk Assessment 2022</a>	Comprehensive assessment of risks and opportunities facing the UK from climate change.		5	2023	<i>Climate Change Act 2008</i> ( <a href="#">Climate Change Act 2008 (legislation.gov.uk)</a> )	
	<a href="#">Progress in Adapting to Climate Change</a>	A progress report (assessment) to parliament on <i>National Adaptation Programme</i> progress in preparing for climate change.		2	2023	<i>Climate Change Act 2008</i> ( <a href="#">Climate Change Act 2008 (legislation.gov.uk)</a> )	
Canada	<a href="#">Canada's National Adaptation Strategy</a>	Provides a blueprint or guide for climate adaptation in Canada.	The Strategy has 5 domains, each with a transformational goal and medium-term objectives. <i>The National Adaptation Strategy</i> contains 4 guiding principles to shape adaptation objectives: 1) respect jurisdictions and Indigenous rights; 2) advance equity and environmental justice; 3) take	8	2023	N/A	

National Adaptation Plan – Issues Paper

Country	Documents	Scope	Adaptation action prioritisation	Duration (years)	Last published	Legislative basis	Monitoring & reporting
			proactive action; and 4) maximize benefits and avoid maladaptation.				
	<a href="#">Government of Canada Adaptation Action Plan</a>	The policy and program framework that will deliver the targets, goals and objectives in the <i>National Adaptation Strategy</i> .	The action plan uses the same structure as the <i>National Adaptation Strategy</i> to identify 68 adaptation actions across 5 systems.	5	2022	N/A	5 years.
<b>New Zealand</b>	<a href="#">Aotearoa New Zealand's First National Adaptation Plan</a>	Sets out the government led strategies, policies and proposals to best adapt to the changing climate.	The <i>National Adaptation Plan</i> has 3 core goals to underpin the long-term adaptation strategy: 1) Reduce vulnerability by reducing the sensitivity and susceptibility of people and systems; 2) Enhance adaptive capacity by building capacity; and 3) Strengthen resilience by strengthening the way people cope with climate impacts.	6	2022	<i>Climate Change Response Act 2002</i>  ( <a href="#">Climate Change Response Act 2002 No 40 (as at 24 August 2023)</a> , <a href="#">Public Act Contents – New Zealand Legislation</a> )	Biennial evaluation by the independent Climate Change Commission.
	<a href="#">National Climate Change Risk Assessment</a>	Provide a national overview of hazards and threats and risks/ opportunities from climate change.		6	2020	<i>The Climate Change Response (Zero Carbon) Amendment Act 2019</i> ( <a href="#">Climate Change Response (Zero Carbon) Amendment Act 2019 No 61</a> , <a href="#">Public Act Contents – New Zealand Legislation</a> )	
<b>Spain</b>	<a href="#">National Climate Change Adaptation Plan</a>	Planning document to promote coordinated and coherent adaptation actions.	The <i>National Climate Adaptation Plan</i> has 5 guiding principles to inform the national adaptation plan: 1) Social and territorial equity; 2) Science and knowledge; 3) Integrating adaptation across all sectors; 4) Preventing maladaptation; and 5) Coordination and transparency.	10	2021	<i>The Law of 7/2021</i> , of 20 May, on Climate Change and Energy Transition ( <a href="#">BOE-A-2021-8447 Ley 7/2021, de 20 de mayo, de cambio climático y transición energética.</a> )	3–4 years.



National Adaptation Plan – Issues Paper

Country	Documents	Scope	Adaptation action prioritisation	Duration (years)	Last published	Legislative basis	Monitoring & reporting
Germany	<a href="#"><i>German Adaptation Strategy</i></a>	Provides a policy framework and facilitates cross sectoral approaches for climate adaption in Germany.		5	2020	N/A	4 years.
	<a href="#"><i>The Climate Impacts and Vulnerability Analyses</i></a>	Identifies sectors and regions facing climate risks and identifies priority actions.	The scientific findings and results of the <i>Climate Impacts and Vulnerability Analyses</i> to inform the <i>Adaptation Action Plan</i> actions.	6	2021	N/A	
	<a href="#"><i>Adaptation Action Plan</i></a>	Specifies the current and future measures to adapt to climate change.	The <i>Adaptation Action Plan</i> underpins the strategy by defining specific activities to be implemented.	5	2020	N/A	

# Appendix B: States and Territories and adaptation planning

As outlined in Chapter 1, the Roles and Responsibilities for Climate Change Adaptation in Australia were agreed to by the then COAG Select Council on Climate Change in 2012. The roles and responsibilities for state and territory governments are to:

- deliver adaptation responses in their areas of policy and regulation. This includes service delivery and infrastructure. For example, emergency services, health system, the natural environment, planning, and transport
- provide local and regional science and information through collaboration with all governments to develop and implement a consistent approach
- work with the Australian Government to implement national adaptation priorities and monitoring and evaluation arrangements
- encourage climate resilience and adaptive capacity.

State and territory governments deliver a broad range of services, administer a significant body of legislation, and manage a substantial number of assets and infrastructure. Under the COAG agreement, the focus for state and territory governments is on ensuring appropriate regulatory and market frameworks are in place, providing accurate and regionally appropriate information, and delivering on adaptation responses in areas of policy and regulation that are within the jurisdiction of the state. Local governments are similarly instrumental in adaptation, including in developing local adaptation plans and managing local level assets.

## State and territory adaptation plans

Across Australia each of the state and territory governments have undertaken various levels of adaptation planning for their jurisdictions. Their plans and strategies vary in scope and scale.

### New South Wales

New South Wales published the NSW Climate Change Adaptation Strategy in 2022. It seeks to make NSW more resilient and adapted to climate change and provides a framework to strengthen and expand adaptation action (NSW Government 2022). Under the strategy, climate change risk and opportunity assessments and adaptation action plans will be completed at least every 5 years. The strategy will be evaluated every 5 years to assess how effective it is at achieving the resilience objective in the NSW Climate Change Policy Framework. The first evaluation report will be published in 2028.

The NSW Parliament passed the *Climate Change (Net Zero Future) Act 2023 (NSW)* in November last year. The Act sets an adaptation objective for NSW to be more resilient to a changing climate. Regulations relating to the implementation of this objective will be worked through in late 2024.

### Victoria

Building Victoria's Climate Resilience, published in 2022, summarises the Victorian Government's plan to adapt and build resilience to a changing climate under the overarching Victoria's Climate Change Strategy (Victorian Government 2022). The Adaptation Action Plans for 7 systems (Built Environment,

Education and Training, Health and Human Services, Natural Environment, Primary Production, Transport, and Water Cycle) across Victoria were also released in 2022. These Adaptation Action Plans form a key part of Victoria's 5-yearly statutory cycle of climate science reporting, state-wide strategy setting, and adaptation action planning under the *Climate Change Act 2017 (Vic)*. The Victorian Government also released 6 Regional Climate Change Adaptation Strategies (Gippsland, Barwon Southwest, Hume, Grampians, Greater Melbourne and Loddon Mallee) in 2021 focusing on place-based, community-led climate change adaptation.

## **Queensland**

The Queensland Climate Action Plan 2020–2030 sets the pathway for Queensland to achieve its climate targets and the continued implementation of the Queensland Climate Adaptation Strategy 2017–2030. The Queensland Climate Adaptation Strategy 2017–30 provides a framework to ensure Queensland becomes more climate resilient and manages the risks associated with a changing climate (Queensland Government 2017). The strategy is centred around a partnership approach that recognises that climate change is everyone's responsibility, and that a collaborative approach is needed to ensure resilience is embedded in Queensland's diverse economies, landscapes and communities.

The Queensland Government is developing a comprehensive monitoring, evaluation and review framework for the Queensland Climate Action Plan 2020–2030, which will support monitoring and improvement of implementing climate adaptation policies and programs. The Queensland Government also released 7 industry-led sector adaptation plans across key sectors and systems (Agriculture, Biodiversity and Ecosystems, Built Environment and Infrastructure, Emergency Management, Human Health and Wellbeing, Tourism, and Small and Medium Enterprise), and continues to work with industry in responding to key issues identified within these plans.

## **South Australia**

South Australia: Responding to Climate Change was released in 2022, and alongside South Australian Climate Change Actions includes a range of actions to support communities, industries, businesses, and the environment to build resilience and adapt to climate change by managing risk and harnessing opportunities (Government of South Australia 2022). Progress of South Australian Climate Change Actions will be reviewed prior to the end of the implementation period. The South Australian Government partners with regional organisations to support regional climate change adaptation planning and implementation.

## **Western Australia**

Western Australia's Climate Adaptation Strategy delivers priority actions to ensure that Western Australia's communities and economy are resilient to risks posed by climate change (Government of Western Australia 2023). The strategy was released in 2023. The Western Australia Government will develop a framework for monitoring, evaluation and reporting to track implementation progress. Future adaptation planning requirements will be introduced through the new Climate Change Bill 2023 (WA), which has provisions relating to Climate Adaptation Strategies, and Sector Adaptation Plans for 7 sectors.

## **Tasmania**

Tasmania's climate change strategy is governed by the *Climate Change (State Action) Act 2008 (Tas)* which was updated in 2022. Tasmania's Climate Change Action Plan 2023–2025 details the government's plan for action on climate change for the next two years (Tasmanian Government 2023). The plan includes the deliverables specified in the Act and a range of other strategic policy commitments and operation programs. The government is currently working to progress the first statewide climate change risk assessment, Sectoral Emissions Reductions and Resilience Plans for transport, waste, energy, industrial processes and product use, agriculture, government operations and land use, land use change and forestry, along with a range of other smaller programs within the plan. The progress of each action will be reported annually.

## **Northern Territory**

The Northern Territory Government's Climate Change Response: Towards 2050 was released in 2020. It provides a policy framework that will enable the Northern Territory to strategically manage climate change risks and opportunities (Northern Territory Government 2020). The government will be accountable for its delivery of the objectives of this response by reporting annually to the Legislative Assembly. This response will be reviewed in 2025.

A Three-Year Action Plan was released in 2020 to support Climate Change Response: Towards 2050. In accordance with the Three-Year Action Plan, the Northern Territory Government is expecting to finalise and release a climate change adaptation and resilience framework in early 2024. Concurrent with the development of the framework the Northern Territory Government is also engaged in a whole-of-Territory climate risk assessment process focused on identifying and addressing the impacts of climate change on those key factors which contribute to the liveability of the Northern Territory. This work will be finalised in the first half of 2024 and will inform the development of a subsequent Northern Territory climate change adaptation action plan.

## **Australian Capital Territory**

The ACT Climate Change Strategy 2019–2025 outlines the steps the ACT Government is taking to build resilience to climate change impacts while also achieving net zero emissions by 2045 (ACT Government 2019a). Canberra's Living Infrastructure Plan: Cooling the City focuses on how Canberra can be climate wise and use nature in the city to mitigate the impact of the urban heat island effect (ACT Government 2019). A Whole of Government Adaptation Framework has been developed to provide a high-level step-by-step guide on how ACT Directorates and agencies can identify climate risk and build adaptation plans.

# Appendix C: Consultation questions

## Foundations for a National Adaptation Plan

- What do you think a well-adapted and resilient Australia looks like? Does the draft vision capture this? Why, why not? Do you agree with the key objectives of the plan? What other suggestions do you have?
- The plan will respond to the priority nationally significant risks identified in the National Climate Risk Assessment. Within those, what areas should be the Commonwealth's priority for this National Adaptation Plan and why?
- What is working well in adaptation policy governance at the national level? Are there more opportunities for collaboration, or institutional changes that will help build a more adapted Australia?
- How should adaptation success be measured?
- What time horizon should the National Adaptation Plan cover?
- Do you support the draft principles for prioritising and sequencing adaptation actions over time? Why or why not? Are there any gaps?

## Systems sections

- What other existing policies are supporting adaptation for this system?
- Who should be undertaking action to strengthen adaptation action in this system?
- What are the barriers to strengthening adaptation? How could the National Adaptation Plan help with these?
- What policies could be strengthened or added as the highest priorities?
- What measurement and evaluative tools and processes should be implemented to track adaptation progress for this system?

## Specific questions for the First Nations' values and knowledges system

- What are some examples of First Nations-led adaptation action and partnerships? How can these actions and partnerships be better supported?
- Along with First Nations peoples, who should be undertaking action to strengthen First Nations-led adaptation action and partnerships?
- What are the barriers to strengthening First Nations-led adaptation action and partnerships? How could the plan help with these?
- What First Nations-led adaptation actions and partnerships should be prioritised now to support medium-term (2050) and long-term (2100) adaptation?
- What First Nations' knowledges frameworks can support measurement and evaluative tools and processes to track adaptation progress?

- What are the biggest opportunities for First Nations peoples in the context of the National Adaptation Plan?

# Appendix D: The National Climate Risk Assessment domains and systems

The full methodology document (DCCEEW 2023b) and the results of the first pass risk assessment (DCCEEW 2024) are available on the department’s website.

## Elements at risk, domains and systems

The starting point of the risk assessment methodology is ‘elements at risk’ – things of value to Australians that could be impacted, negatively or positively, by climate change. The elements at risk identified were categorised according to 4 broad, inter-related domains (Table D1). To understand the complexities and collateral impacts of risks, elements at risk across domains were considered within systems, as illustrated in Figure 3 of the risk assessment methodology.

**Table D1: Elements at risk considered across each of the four domains<sup>^</sup>**

Social	Natural	Built	Economic
Culture and cultural heritage	Antarctica and subantarctic islands	Buildings & structures Cities and towns	Agriculture, forestry and fishing
Employment and financial wellbeing	Sky Country (Atmosphere)	Communications and ICT	Banking and finance
Health and wellbeing	Biodiversity	Defence assets	Charities and not-for-profits
Housing	Coasts	Education infrastructure	Construction
Indigenous culture, values and principles	River Country - Creek and Streams Country, Muddy Water Country (Inland Water)	Emergency services	Education and training
Skills and education	Land	Energy	Government sector
Social cohesion and connection	Desert Country	Flood and coastal defences	Healthcare and social assistance
Social welfare services	Right Way land management	Food and grocery assets	Insurance
Sports and recreation	Sea Country (Marine)	Health care and medical assets	Manufacturing
	Natural heritage	Built heritage	Mining
	Phenology	Transport	Services (including Tourism)
	Sound archaeology (Nature acoustics)	Utilities	Small to medium enterprises
			Trade sector
			Indigenous business

<sup>^</sup> Domains are defined as follows: Social: People, their communities, cultures, institutions, support systems, and their interactions. Built: Human-made surroundings, structures, and any supporting infrastructure created using material, spatial, and human resources to facilitate life, health, work and play. Economic: The production and consumption of goods and services, as well as the financial and economic systems that enable this. Natural: The landscapes, seascapes, ecosystems, cultivated spaces (e.g., farmlands, managed forests), diverse native and exotic plant and animal life within Australia and its ocean territory.

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# Glossary

Term	Definition
Adaptation	In human systems, the process of adjustment to actual or expected climate and its effects, to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.
Betterment	For the purposes of the Disaster Recovery Funding Arrangements, infrastructure ‘betterment’ is considered to be the restoration or replacement of a damaged essential public asset to a significantly more disaster resilient standard than its pre-disaster standard.
Capacity	The combination of all the strengths, attributes and resources available within an organisation, community or society to manage and reduce disaster risks and strengthen resilience. Capacity may include infrastructure, institutions, human knowledge and skills, and collective attributes such as social relationships, leadership and management.
Carbon credit	A tradeable unit that represents 1 tonne of carbon dioxide equivalent stored or avoided by a project.
Climate Change Authority	An independent body established under the <i>Climate Change Authority Act 2011</i> . The Climate Change Authority’s function is to provide expert, independent advice to the government on climate change policy.
Climate risk	The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems. In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change. Relevant adverse consequences include those on lives, livelihoods, health and well-being, economic, social and cultural assets and investments, infrastructure, services (including ecosystem services), ecosystems and species.
Communicable diseases	Diseases that can be spread from person to person.
Conference of the Parties (COP)	The decision-making body of the UNFCCC. All States that are Parties to the Convention meet every year and review the implementation of the Convention and any other legal instruments that the COP adopts and take decisions necessary to promote the effective implementation of the Convention, including institutional and administrative arrangements.
Critical infrastructure	Those physical facilities, supply chains, information technologies and communication networks which, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact the social or economic wellbeing of the nation or affect Australia’s ability to conduct national defence and ensure national security.
Decarbonisation	Removal or reduction of carbon dioxide output into the atmosphere from processes such as manufacturing or the production of energy.
Disaster	A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.
Disaster risk reduction	Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development. Disaster risk reduction is the policy objective of disaster risk management, and its goals and objectives are defined in disaster risk reduction strategies and plans.
Emergency management	Emergency management involves the plans, structures and arrangements which are established to bring together the normal endeavours of government, voluntary and

<b>Term</b>	<b>Definition</b>
	private agencies in a comprehensive and coordinated way to deal with the whole spectrum of emergency needs including prevention, response and recovery. Emergency management is also used, sometimes interchangeably, with the term disaster management, particularly in the context of biological and technological hazards and for health emergencies. While there is a large degree of overlap, an emergency can also relate to hazardous events that do not result in the serious disruption of the functioning of a community or society.
Greenhouse gases	Any gas (natural or produced by human activities) that absorbs infrared radiation in the atmosphere, leading to warming effects. Greenhouse gases include carbon dioxide, methane and nitrous oxide.
Hazard	A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. Hazards may be natural, anthropogenic or socio-natural in origin.
Industrial processes and product use	Includes emissions from chemical feedstocks, reductants, carbonates and hydrofluorocarbons HFCs, which are used in refrigerants and air conditioning.
Intergovernmental Panel on Climate Change (IPCC)	The United Nations body for assessing the science related to climate change.
Land use, land use change and forestry	Emissions and sequestration from activities occurring on forest lands, forests converted to other land uses, grasslands, croplands, wetlands, and settlements.
Mitigation	Reducing greenhouse gas emissions in order to stop climate change getting worse.
Net zero emissions	An overall balance between greenhouse gas emissions and removals
Paris Agreement	An international agreement adopted under the United Nations Framework Convention on Climate Change in 2015. Under the Paris Agreement, the global temperature goal is to keep warming to ‘well below’ 2° C compared with pre-industrial levels, and to ‘pursue efforts to limit the temperature rise to 1.5°C.’
Place-based	Place-based approaches are collaborative, long-term approaches to build thriving communities delivered in a defined geographic location. This approach is ideally characterised by partnering and shared design, shared stewardship, and shared accountability for outcomes and impacts. Place-based approaches are often used to respond to complex, interrelated or challenging issues—such as to address social issues impacting those experiencing, or at risk of, disadvantage, or for natural disasters.
Residual risk	The risk that remains after efforts to identify and eliminate some or all types of risk have been made.
Resilience	The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.
Sequestration	Carbon sequestration is the process of capturing and storing atmospheric greenhouse gases. Greenhouse gases can be stored in biological ecosystems, underground geological formations or in manufactured products.
Sustainable finance taxonomy	A set of criteria which can be used to evaluate whether economic activities are aligned with or contribute to climate and other sustainability objectives.
United Nations Framework Convention on Climate Change (UNFCCC)	The United Nations convention that supports the global response to climate change, with the ultimate aim of preventing dangerous human interference with the climate system.