Chapter 1

Introduction

1.1 On 9 May 2017, the Senate referred the following matter to the Environment and Communications References Committee for inquiry and report:

> The current and future impacts of climate change on housing, buildings and infrastructure, accounting for the full range of projected climate scenarios, having regard to matters, including:
>
> (a) recent and projected changes in sea level rises, and storm surge intensity;
>
> (b) recent and projected changes in temperature and precipitation;
>
> (c) recent and projected changes in extreme weather, including heatwaves, bushfires, floods, and cyclones;
>
> (d) recent and projected changes in natural coastal defence systems including coral reefs, kelp and mangrove forests;
>
> (e) the impact of these changes on the vulnerability of infrastructure in coastal areas;
>
> (f) the impact of these changes on water supply and sewage treatment systems;
>
> (g) the impact of these changes on transportation, including railways, roads and airports;
>
> (h) the impact of these changes on energy infrastructure, including generators and transmission and distribution lines;
>
> (i) the impact of these changes on health, education and social services infrastructure, including hospitals, schools and aged care;
>
> (j) the impact of these changes on private and public housing;
>
> (k) the impact of these changes on public recreation and tourism facilities;
>
> (l) the impact on financing and insurance arrangements for housing, buildings and infrastructure;
>
> (m) the adequacy of current state and Commonwealth policies to assess, plan and implement adaptation plans and improved resilience of infrastructure; and
>
> (n) any other related matters.[1]

1 *Journals of the Senate*, 9 May 2017, p. 1305.

1.2 The committee was initially required to report by 23 November 2017. However, on 16 October 2017, the Senate granted an extension of time to report until 27 March 2018. On 13 February 2018, the Senate granted a further extension of time to report until 27 June 2018. A final extension to 13 August 2018 was granted by the Senate on 25 June 2018.[2]

Conduct of the inquiry

1.3 In accordance with its usual practice, the committee advertised the inquiry on its website and wrote to relevant individuals and organisations inviting submissions. The date for receipt of submissions was 16 August 2017, although the committee received and considered submissions after that date.

1.4 The committee received 65 submissions, which are listed at Appendix 1.

1.5 The committee held three public hearings for this inquiry, as follows:

- Sydney, 23 November 2017;
- Melbourne, 15 March 2018; and
- Canberra, 22 March 2018.

1.6 A list of witnesses who appeared at the hearings is at Appendix 2. The public submissions and transcripts of evidence are available on the committee's website at www.aph.gov.au/senate_ec.

Acknowledgement

1.7 The committee thanks all of the individuals, organisations and governments that contributed to the inquiry.

Structure of the report

1.8 Chapter 1 of this report has outlined introductory matters about this inquiry. Chapters 2 to 10 provide an overview of the evidence provided to the committee. Members of the committee have expressed their views in additional comments attached to this report.

1.9 An outline of the matters examined in Chapters 2 to 10 is below:

- Chapter 2 provides background information about the recorded and projected changes in the Australian climate that are of particular relevance for the built environment.
- Chapter 3 considers how improved understanding of climate risks can support risk management and effective climate change adaptation.

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2 *Journals of the Senate*, 17 October 2017, p. 2084; 13 February 2018, p. 2690; 25 June 2018, p. 3271.

- Chapter 4 examines the implications of climate change for approaches to urban and coastal planning, including planning for sea level rise, addressing the urban heat island effect and managed retreat.
- Chapter 5 discusses how climate change is influencing developments in the markets for insurance and property finance.
- Chapter 6 focuses on the risks climate change presents relating to residential and commercial buildings, including the resilience of buildings to extreme weather events and heat stress from unsafe internal temperatures.
- Chapter 7 addresses the implications of climate change for transportation infrastructure and the infrastructure used for water supply, sewage treatment and energy.
- Chapter 8 considers the implications of climate change for the buildings and infrastructure relied on for health care, aged care, education, tourism and public recreation.
- Chapter 9 discusses the overall approaches taken by the Australian, state and territory governments regarding adaptation planning and policies to improve the resilience of infrastructure to climate change. Whether current legislative and institutional arrangements within government are appropriate for responding to climate change risks, the coordination of government policies on climate change, and the approach taken to increasing the resilience of infrastructure following natural hazard events are particular areas of focus.
- Chapter 10 outlines specific issues local governments face in responding to the threats climate change presents to buildings and infrastructure.

Note on references

1.10 Many submissions to this inquiry cited published research extensively. This report cites the evidence presented to the committee in the submissions, however, where the author of a submission refers to original research, the citation is generally omitted from this report. Readers should refer to the submissions for details of the research relied on for the evidence presented to the committee (as noted above, the public submissions are available on the committee's website).