

CLIMATE ADAPTATION PROJECT

Research paper 3

Protecting homes from climate change

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This research paper is the third in a series reporting the results of a new public opinion survey exploring what Australians think and how they feel about life on a warmer planet, and how to prepare for it. Carried out by Roy Morgan Research for Clive Hamilton, Professor of Public Ethics at Charles Sturt University in Canberra, the survey sampled the views of almost 2,000 adults, chosen to be representative of the Australian population. An overview of the survey method can be found at the end of this paper, with full details available in a separate technical report.

Summary

Damage from floods, fires, storms, and cyclones cost Australian homeowners around \$4 billion each year, costs expected to rise rapidly as climate change brings more severe weather events. Our survey shows that a third of Australian homeowners have personally and directly experienced flooding since 2019, with 8% living through three or more flood events. A similar number (30%) have been affected by one or more bushfires in the last six years.

Experience of extreme weather events varies widely across states and regions. The survey results confirm the wide difference in exposure between residents of the capital cities and the regions, other than in Queensland. They also highlight the extent to which Hobart seems largely exempt from the extreme weather that plagues the mainland.

Almost a quarter of Australians say they have modified their homes in the last six years to reduce damage from extreme weather events. Of those, four in ten have taken measures to protect themselves from storms with strong winds, while a quarter have invested in making their homes more resistant to the effects of heatwaves.

¹ To cite: Clive Hamilton, 'Parents, children and climate change,' Research paper 3, Climate Adaptation Project, Charles Sturt University, October 2025.

Homeowners most exposed to extreme events are much more likely to modify their homes. But those most worried about climate change are also much more likely than those little concerned to prepare their homes even when they are at lower risk. Those who vote for conservative parties are substantially less likely to protect their homes from extreme weather events than those who vote for progressive parties.

Introduction

News media have been full of stories about the rapid uptake of solar power and batteries by Australian households, but few report on how homeowners are taking measures to protect themselves and their families from extreme weather events. In other words, attention has mostly been on reducing carbon emissions with little on how we are adapting to expected climate change. Yet floods, bushfires, storms and cyclones can be devastating for householders. Exposure can damage or destroy their most valuable asset and, especially with repeated exposure, leave them traumatised—with poorer health, depression, anxiety, and PTSD.² Some are left homeless.

Extreme weather events cost Australians around \$4 billion each year in damage to residences, a figure rising rapidly; in fact, it is projected to reach \$35 billion annually by 2050.³ The wider impacts of climate change are expected to see the value of Australian property written down by \$500 billion by 2030. Currently, 652,000 properties are at risk of damage from extreme weather events and have inadequate or no insurance cover.⁴ All Australians are paying higher insurance premiums because of damage to property from extreme weather events.

Insurers are beginning to reduce premiums for households taking protective measures, such as discounts for those who meet a bushfire resilience rating test.⁵ These can alter the cost-benefit calculus for households when investing in home protection. Government subsidies to make home insurance cheaper are generally a bad idea because they blunt the incentives to

² Rebecca Patrick et al., 'Prevalence and determinants of mental health related to climate change in Australia,' *Australian and New Zealand Journal of Psychiatry*, 2023, 57(5):710-724. Anna Mitchell, Humaira Maheen and Kathryn Bowen, 'Mental health impacts from repeated climate disasters: An Australian longitudinal analysis,' *Lancet Reg Health West Pac.*, 2024, 47:101087.

³ Climate Change Authority, *Home Safe: National leadership in adapting to a changing climate*, Climate Change Authority, June 2025.

⁴ Climate Change Authority, *Home Safe*, *ibid*.

⁵ Anon., 'Insurers back bushfire resilience app with premium discounts,' *Insurance News*, 25 March 2024.

spend on home protection and because they encourage development in disaster-prone regions.⁶

In this paper, we look more closely at homeowners' experience of extreme weather events and how they are responding to worsening climate hazards.⁷ First we report on how many Australians have experienced severe weather events in recent years and what kinds are most common.

Experience of extreme events

As we would expect in a continent-sized nation, experience of extreme weather events varies widely across states and regions. It would be too unwieldy to present all results, but Table 1 shows the differences in exposure of Australians to seven kinds of extreme weather events across capital cities and regions.

Many of the results confirm expectations; but there are some notable disparities. The first is the wide difference in exposure to extreme weather events between residents of the capital cities and the regions, other than in Queensland—see Table 1 (where not all capitals and regions are shown due to space restrictions). The second is the much greater incidence of floods in regional NSW, Brisbane, and the Queensland regions. The third is the extent to which regional NSW carries much of the burden of bushfires (at least since 2019). The fourth is the monopoly on cyclones held by Queensland, with northern NSW taking a bit of the punishment. The fifth, and perhaps most striking, is the extraordinary degree to which Hobart seems largely exempt from extreme weather events, other than storms with strong winds.⁸

The survey includes two more specific measures of household exposure to extreme weather events. The first measure involved over-sampling from postcodes that fell within local government areas (LGAs) that have experienced disaster-level flooding or bushfires since 2019. Although not all residents of 'affected LGAs' will have been directly affected by the disasters, we can compare attitudes and behaviours of those with more direct experience of weather disasters with the rest of the population.

⁶ Reinsurance companies have said that subsidising homeowners to pay for their insurance against natural disasters is the worst policy. Mark Ludlow and Liam Walsh, 'Insurers question premium claims for \$10b reinsurance pool', *Australian Financial Review*, online, 9 February 2022.

⁷ Climate hazards include *acute* ones such as floods, cyclones, and bushfires, and *chronic* ones such as rising seas, heat stress, and exposure to rain.

⁸ Hobart experienced a catastrophic bushfire in 1967.

Table 1 (Q16) Since 2019, how often, if at all, have you personally and directly experienced each of the following types of extreme weather events? (Experienced one or more times, n = 1955) %

Type of EWE	Total	Capital cities and regions							
		Syd- ney	NSW ex Syd	Melb	Vic ex Melb	Bris- bane	QLD ex Bris	Adel- aide	Hobart
Floods	32.1	32.1	<u>53.8</u>	<u>16.5</u>	<u>41.1</u>	<u>57.8</u>	<u>54.8</u>	<u>8.8</u>	<u>5.4</u>
<i>Floods, two or more</i>	<i>18.7</i>	<i>19.1</i>	<i><u>36.9</u></i>	<i><u>7.4</u></i>	<i>14.5</i>	<i><u>37.5</u></i>	<i><u>35.0</u></i>	<i><u>3.8</u></i>	<i>0</i>
Bushfires	29.4	32.0	<u>52.1</u>	<u>17.8</u>	29.7	<u>15.1</u>	25.8	23.6	<u>5.6</u>
Heatwaves	74.4	75.4	70.1	70.7	70.5	76.5	74.9	<u>90.1</u>	<u>25.9</u>
Storms with strong winds	87.4	89.3	<u>91.8</u>	<u>81.9</u>	86.3	<u>97.8</u>	86.4	83.9	68.2
Cyclones	22.1	<u>6.5</u>	20.4	<u>5.2</u>	<u>5.9</u>	<u>83.9</u>	<u>66.1</u>	<u>7.2</u>	0
Droughts	30.3	<u>22.5</u>	<u>45.8</u>	<u>22.7</u>	<u>57.9</u>	<u>21.4</u>	34.8	<u>55.9</u>	0
Storm surges and coastal erosion	19.8	20.3	<u>26.4</u>	<u>10.1</u>	16.2	<u>26.7</u>	<u>30.7</u>	15.3	7.8

Notes: Underlined numbers differ from the average at a 95% significance level. For Hobart, n = 16 so the figures should be treated with caution. EWE – extreme weather event.

The second, more targeted, measure was compiled by asking all respondents whether they had personally and directly experienced extreme weather events since 2019. They were asked to nominate which of seven kinds of extreme events they had experienced and how many times (once, twice, or three or more times). A metric of ‘exposure to extreme weather events’ was created by aggregating their experiences, from no exposure to high exposure.⁹

Table 2 shows percentages of respondents who have experienced each of seven kinds of extreme weather events and how the percentages vary according to our two measures of exposure. Heatwaves and storms with strong winds affect all parts of the country and their definitions are less clear-cut than they are for floods and bushfires.¹⁰ So it’s not surprising to see that 74% and 87% of homeowners say they have experienced one or more of them since

⁹ Experiences of heat waves and storms with strong winds were given less weight because high proportions of respondents reported three or more of these events and their harms are usually less severe than the other events.

¹⁰ Respondents were told that ‘A heatwave is when the maximum and minimum temperatures are unusually hot over 3 days. This is compared to the local climate and past weather.’ ‘Storms with strong winds’ was left undefined, as were the other extreme events.

2019. (Three or more heatwaves since 2019 were experienced by 44% and three or more storms with strong winds by 55%.)

Table 2 (Q16) Since 2019, how often, if at all, have you personally and directly experienced each of the following types of extreme weather events? (Experienced one or more time, n = 1955) %

Type of EWE	Total	LGA affected by EWE		Exposure to extreme weather events			
		Yes	No	None (17%)	Low (32%)	Medium (23%)	High (28%)
Floods	32.1	<u>54.1</u>	<u>26.9</u>	0	9.9	39.6	73.6
Bushfires	29.4	<u>38.7</u>	<u>27.2</u>	0	16.9	35.0	59.0
Heatwaves	74.4	72.6	74.8	38.6	73.9	82.7	91.4
Storms with strong winds	87.4	89.2	87.0	54.7	89.6	96.1	99.1
Cyclones	22.1	<u>40.8</u>	<u>17.7</u>	0	10.3	28.0	46.0
Droughts	30.3	<u>41.7</u>	<u>27.6</u>	0	15.1	39.0	61.3
Storm surges and coastal erosion	19.8	<u>30.9</u>	<u>17.1</u>	0	4.4	19.4	51.3

Notes: EWE – extreme weather event. For the ‘Exposure to extreme weather events’ measure, significance results cannot be used because the metric is an aggregate. For the headings ‘None-High’ exposure, the percentages in the headings are of respondents falling into each exposure category. The rows of the table show percentages of those who experienced at least one event.

Floods have affected 32% of homeowners. Breaking this down further, 13% said they had experienced one flood, 10% said two floods, and 8% said three or more floods. A similar number (30%) have directly experienced at least one bushfire. (For some respondents, the effects of bushfires could have included smoke.)

As expected, those in LGAs that had emergency funding activated had double the percentage of flooding compared to those in unaffected LGAs (54% versus 27%). The difference is also significant for bushfires—39% in affected LGAs against 27% in unaffected LGAs.¹¹

Home modification

Much can be done to reduce or prevent damage when severe events occur. However, many find it hard to take protective measures. Survey evidence from the UK indicates that only

¹¹ The effects by LGA confirm the oversampling method by demonstrating higher self-reported exposure for those in disaster funding activated LGA's.

33% of people who have experienced a flood take steps to protect their homes from further flooding.¹² The motivations to act include direct experience of an event, perceived personal risk, financial effects (costs, insurance, property value), social norms (including neighbourhood behaviour and trusted sources of advice), and personal capacity or self-efficacy (such as ‘hands-on’ experience). Barriers to action include underestimation of vulnerability, lack of good information about risks and benefits, high costs, shifting responsibility to government, relying on adequate insurance, aesthetic trade-offs, and wishful thinking.¹³

We asked homeowners whether they had modified their homes since 2019 to protect themselves from extreme weather events. The results are shown in Table 3. Almost a quarter of Australians (23%) say they have modified their homes in the last six years to reduce damage from extreme weather events. As might be predicted, those with greater exposure to extreme weather events are much more likely to modify their homes, with the share rising from 12% of those with no exposure to 34% of those with high exposure, using our composite metric—see the top panel of Table 3.

Table 3 (Q4) Have you modified your home since 2019 in any way to reduce damage from extreme weather events? (Asked of homeowners, outright or paying off, n = 1340)
%

% that had modified	Exposure to extreme weather events				
	None	Low	Medium	High	
23.4	<u>11.8</u>	<u>19.1</u>	<u>29.1</u>	<u>33.6</u>	
	Level of concern about climate change				
	Not at all	Slightly	Moderately	Very	Extremely
23.4	<u>12.9</u>	22.1	19.8	26.8	<u>31.3</u>
	Gross household annual income				
	< \$50,000	\$50-99,999	\$100-149,999	\$150-249,999	\$250,000+
23.4	20.9	23.0	26.8	24.9	23.2

¹² Tim Harries, ‘Why most “at-risk” homeowners do not protect their homes from flooding.’ In Jessica Lamond, et al., (eds.) *Flood hazards: impacts and responses for the built environment* Boca Raton, Florida, CRC Press. pp. 327-341, 2011.

¹³ When a homeowner who had just finished renovating his flooded house was asked what he had done to protect himself from the next flood, he replied: ‘There won’t be another flood’. (Personal communication)

The share of those taking measures to protect their homes varies quite widely according to how concerned they are about climate change, rising from 13% of the unconcerned to 31% of the extremely concerned (middle panel). Put another way, those who deny the science of climate change or believe it is exaggerated are less inclined to protect themselves. This correlation is consistent with US studies.¹⁴

The third panel of Table 3 shows there is little variation in modification rates across household income groups, although the data do not allow us to distinguish between inexpensive and less effective modifications and more expensive and effective changes. To protect a home from floods, for example, the most effective but most expensive measure may be to elevate the dwelling, a measure our data show was taken by only 6% of those most worried about flooding. On the other hand, one of the most effective measures to protect a house from bushfires—ember-proofing—is not very expensive.¹⁵

The data show no substantial difference in home modification rates across education levels or by region, except for regional Queensland where the rate (32%) is significantly higher than the national average (23%).

Politically, Liberal Party voters (17%) and National Party voters (14%) are much less likely than Greens voters (31%) to have taken measures to protect their homes. Labor voters have an average rate (24%) with Independents a little higher (28%).

Next, we asked those who said they had modified their homes to indicate the kind of event mostly responsible for prompting them to do so. The results are shown in the second column of Table 4.

Bear in mind that some householders retrofit their homes to deal with more than one threat so the total number that have prepared for, say, bushfires will be higher. The most frequently cited events are storms with strong winds (38%) followed by heatwaves (26%). Floods (14%) and bushfires (11%) are also prominent.

¹⁴ Dimitrios Gounaridis, Wanja Waweru and Joshua P Newell, ‘Triple exposure: the geographic correlation between flood risk, climate skepticism, and social vulnerability in the United States,’ *Environmental Research Letters*, 2024, 19, 114084.

¹⁵ Kimiko Barrett, Stephen L. Quarles, ‘Retrofitting a home for wildfire resistance: Costs and considerations’, *Headwaters Economics*, Spring 2024.

Although not shown, for residents in our oversampled postcodes (in LGAs that had had emergency funding activated) floods and bushfires feature more prominently, as we would expect—for floods, 18% in the oversampled areas versus 12% in areas outside, for fires, the corresponding figures are 19% versus 8%. Protection from storms and heatwaves feature less prominently in oversampled areas than in other areas because we oversampled in areas that had been subject to severe floods or bushfires.

Table 4 (Q4a) When you modified your home, what kind of extreme weather event were you most concerned to protect yourself from? (Q4b) Which of the following modifications have you made to your home since 2019, if any, to protect it from [EWE nominated in Q4a] (Asked only of homeowners who said they had modified their home, n = 303) %

EWE of most concern, % selecting		Four most common types of modification, % nominating (of those selecting the relevant EWE)			
Floods	13.7	Seal gaps in windows & doors (43%)	Install pump & drainage system (39%)	Levee/water diversion (22%)	Water-resistant building materials (16%)
Bushfires	10.8	Remove/cut back trees & vegetn (74%)	Seal gaps in windows & doors (53%)	Install ember-proof mesh (35%)	Automatic sprinkler (23%)
Heatwaves	26.0	Install or upgrade AC (71%)	Fit awnings, ext. blinds, shutters (41%)	Install insulation (36%)	Plant shade trees (33%)
Storms with strong winds	37.9	Remove/cut back trees & vegetn (65%)	Replace/secure roof sheeting /tiles (50%)	Fit awnings, ext. blinds, shutters (24%)	Upgrade gutters (5%)
Cyclones	3.6	Remove/cut back trees & vegetn (83%)	Fit awnings, ext. blinds, shutters (24%)	Replace/ secure roof sheeting/tiles (18%)	Anchor roof/wall with straps (12%)
Droughts	3.6	Install rainwater tanks (69%)	Plant drought-resistant garden, change watering (59%)	Install water-eff. showers, toilets etc (50%)	Change ag irrigation method (47%)
Storm surges and coastal erosion	0.6	Improve drainage system (100%)	Install flood protection (41%)	-	-

Notes: Among EWEs of most concern, 3.8% nominated others. Low number of responses make results unreliable except for heatwaves and storms.

Table 4 also shows the four types of modification most undertaken to protect homes from each kind of extreme weather event, with the percentages of those who nominated each type shown in parentheses.

The modifications for floods show a mix of preventive measures (sealing, levees) and adaptive strategies (pumps, water-resistant materials), highlighting a comprehensive approach to flood risk management. The most popular measure, sealing gaps in windows and doors, is a low-cost, accessible first line of defence.

Studies find many households strongly prefer resistance measures (‘keeping water away’) because they align with the intuition of protection.¹⁶ Resilience measures—those that accept water may enter buildings but help it drain away leaving minimal damage—are less popular because they feel like ‘admitting defeat’ even though they often make the most economic sense.¹⁷ For some there may be little alternative. Many shopkeepers in Lismore have adapted their premises so that they can remove all stock and equipment quickly, hose out their shops after the flood, and resume business within a few days.¹⁸

Policy proposals

Low-income households, renters, and some disadvantaged regions face financial and practical barriers to making their homes safer, barriers such as split incentives for rental houses, unaffordability, and limited access to trades. Without targeted support, household-level adaptations can entrench vulnerability and leave the poorest bearing disproportionate risk.¹⁹

Government intervention is needed to support these groups but governments have been dragging their feet.²⁰ Some councils and state governments are now offering advice and support for retrofitting homes—for example, Queensland’s Stronger Homes Grant program provides grants of up to \$10,000 to cover eligible works to improve resilience against floods.²¹ But the Climate Change Authority has warned that adaptation is lagging in part

¹⁶ Lisa Köhler, et al., ‘Better prepared but less resilient: the paradoxical impact of frequent flood experience on adaptive behavior and resilience’, *Natural Hazards Earth System Science*, 2023, 23:2787–2806.

¹⁷ At its simplest, ‘adaptation’ is what you do and ‘resilience’ is what you gain, although the terms are often used loosely.

¹⁸ Heath Gilmore, “‘Crazy brave’: the businesses taking on Australia’s flood capital,” *Sydney Morning Herald*, 28 February 2023. Author’s personal observations.

¹⁹ Renee Zahnow et al., ‘Climate change inequalities: A systematic review of disparities in access to mitigation and adaptation measures’, *Environmental Science & Policy*, 2025, 165.

²⁰ Clive Hamilton and George Wilkenfeld, *Living Hot: Surviving and thriving on a warming planet*, Hardie Grant, 2024.

²¹ <https://tinyurl.com/22vpt2n2>

because government adaptation plans and measures are fragmented, uncoordinated, and underfunded.²² There is a ‘pressing need’, it says, for the federal government to do much more. A 2022 report by the Insurance Council urged governments to invest more in resilience.²³

One of the most important measures to enhance future resilience to climate change would be to upgrade the National Construction Code in ways that ensure new buildings are built to safety and sustainability standards that anticipate more severe climatic conditions.²⁴ Yet the most high-profile government proposal to emerge from the August 2025 Economic Summit was to *freeze* updates to the building code to speed up housing construction.²⁵ This is a short-sighted approach. Freezing building standards now would mean more Australians living in unsafe houses as climate hazards multiply in the decades to come.

Implications

Households living on the front line of extreme weather are being forced to allocate more resources to repairs, retrofits, and insurance premiums, often widening the gap between already vulnerable communities and more affluent, low-risk enclaves. In other words, climate-related loss is reshaping the urban-rural divide into a ‘high-risk versus low-risk’, a divide that also intersects with political divisions, housing tenure, and access to capital.

For some homeowners, high awareness about a more hazardous climate future is motivating material investment in home protection while neighbours carry on as normal. The phenomenon may reflect a broader cultural shift, with some households increasingly likely to treat their dwelling as a personal ‘climate bunker.’ The trend blurs the line between ordinary home improvement and defensive infrastructure, embedding climate resilience into everyday domestic practice, at least for some.

The data reveal a clear partisan split. Progressive voters are much more likely to retrofit their homes for climate protection than conservative voters. Over time, such divergent practices

²² Climate Change Authority, *Home Safe*, op. cit.

²³ <https://tinyurl.com/4wjkbhae>

²⁴ Climate Change Authority, *Home Safe*, op. cit.

²⁵ Andrew Brown and William Ton, ‘Pause on new regulations to fast-track building homes,’ *Canberra Times*, 24 August 2025.

could deepen cultural polarization, as the built environment itself starts to reflect political fault lines.

A third of homeowners have lived through at least one flood since 2019, and a notable minority have endured three or more events. Repeated exposure rewrites community narratives about what constitutes ‘normal’ weather. Extreme weather events become embedded in local lore, influencing everything from neighbourhood cohesion to inter-generational storytelling. This evolving collective memory can alter risk tolerance, affect migration decisions (some stay put and fortify, others leave), and ultimately reshape how societies imagine their relationship to place in an era of escalating climate volatility.

Survey method summary

The survey, carried out by Roy Morgan Research, had an overall target of 2,000 completes, aiming for a mix of 1,700 completes broadly representative of the Australian population by age, gender, and region, and 300 additional completes from Australians living in areas affected by one or more extreme weather events since 2019 (see below). Non-interlocked quotas were set for the sample based on the distribution of the adult Australian population for each of age, gender and region.

Participants were invited to participate in the survey online via e-mail and SMS with a personalised link. A total of 2,099 respondents completed the survey, reduced to 1,955 after cleaning the data set to exclude poor-quality responses. The survey was carried out between 22 May and 22 June 2025.

To better assess the effects of direct exposure to extreme weather events, additional respondents were sought from Australians living in postcodes that had been affected by extreme weather events since 2019 (before the Black Summer Bushfires). The National Emergency Management Agency database, which lists severe events (floods and bushfires only), was used to define the areas so affected.

The average interview length for the survey was just under 10 minutes. Participants were given an incentive to complete the survey through a combination of ‘panel points’ redeemable in gift-vouchers and entry to a quarterly prize draw.

Full details of the survey methodology and the questionnaire can be found in the technical report posted on this website.

October 2025