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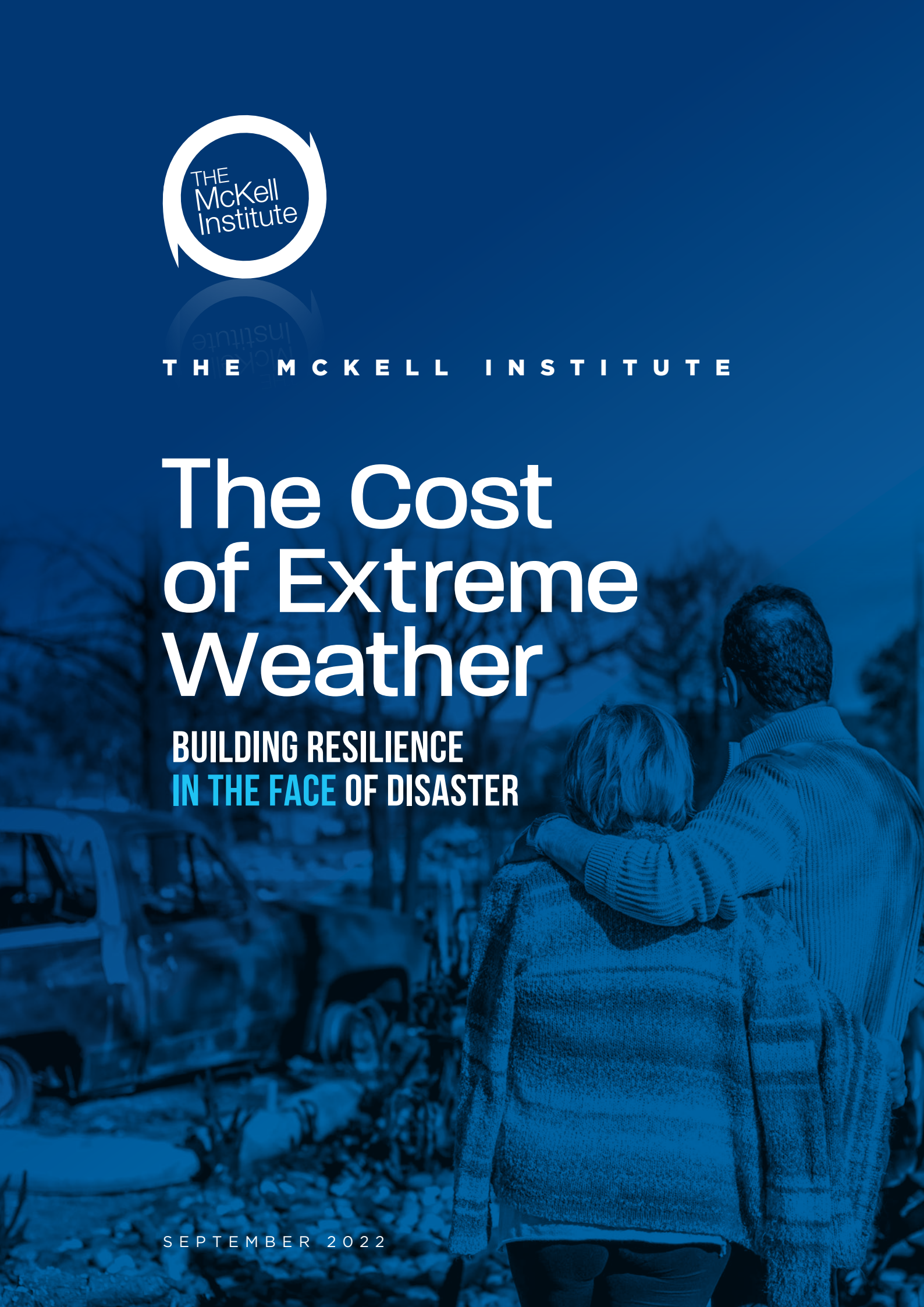
The Cost of Extreme Weather

BUILDING RESILIENCE IN THE FACE OF DISASTER



SEPTEMBER 2022

ABOUT THE MCKELL INSTITUTE

The McKell Institute is an independent, not-for-profit research organisation dedicated to advancing practical policy solutions to contemporary issues.

For more information call (02) 9113 0944 or visit www.mckellinstitute.org.au

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This report was written on the lands of the Darug and the Eora Nations. The McKell Institute acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Owners of Country throughout Australia and their continuing connection to both their land and seas.

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SEPTEMBER 2022

EXECUTIVE SUMMARY

Climate change is no longer a theory, it's a fact. The consequences are upon us, and there are both severe direct and indirect costs for every single Australian. And these costs will only increase.

Climate change is driving worsening destructive extreme weather events in a range of different ways around Australia; from more severe bushfire seasons and intense heatwaves to more powerful cyclones, flash flooding and droughts.

According to the International Disasters Database, in 2021, 432 catastrophic events were recorded globally, which is significantly higher than the average of 357 annual extreme weather events recorded between 2001-2020. Floods dominated these events, with 223 recorded in 2021, up from an average of 163 per annum between 2001-2020. The Australian East Coast Floods in 2022 not only impacted millions of people and cost over $5 billion in damages, but they also showed that even individuals who were not directly impacted by the event bear the economic and social cost. These impacts range from the rising cost of produce to shouldering the tax bill for recovery costs.

Not only that, but according to our research direct costs from extreme weather events are estimated to grow by 5.13 per cent each year (before inflation) and reach $35.24 billion (in 2022 dollars) by 2050. In 2050 Australian households will be paying an average of $2,509.16 every year for the direct costs of extreme weather events. The wider economic costs will be even greater.

Part 1 of this report will look at the latest literature on climate change and outlines the well-established link between climate change and the increased frequency and intensification of extreme weather events. **Part 2** will examine the direct economic costs to the Australian people, both in terms of insurance and government expenditure. **Part 3** will look at the indirect costs, with a focus on the 2022 East Coast floods. Finally, in **Part 4**, we conclude that if we are to mitigate the rising costs of extreme weather, the government should focus more on resilience and future-proofing.

PART ONE: EXTREME WEATHER EVENTS ARE INCREASING

Climate change has already increased the frequency and intensity of extreme weather and climate systems that influence natural hazards.[1]

– ROYAL COMMISSION INTO NATIONAL NATURAL DISASTER ARRANGEMENTS

Climate change affects the social and environmental determinants of health – clean air, safe drinking water, sufficient food, and secure shelter.[2]

– WORLD HEALTH ORGANISATION

Climate change is an undeniable fact. It is accelerating, and its magnitude and pace are projected to continue to grow more dire. The warming climate is impacting extreme weather events, which are increasing in both frequency and intensity around the globe. Inadequate global action risks the world heading towards catastrophic warming of over 2°C.[3] According to the World Health Organisation (WHO), climate change is expected to cause approximately an additional 250,000 deaths per year from malnutrition, malaria, diarrhoea, and heat stress alone.[4]

It is unequivocal that human activities have contributed to climate change, warming the atmosphere which has resulted in recent changes that are rapid, intensifying, and unprecedented over the past hundreds of years.

Not only has the world already seen an increase in these extreme weather events, but over the coming decades, every region around the globe will see significantly worse impacts than they are already experiencing.[5] This will result in compounding and cascading effects on not only the environment but on our health, livelihoods, food and water, as well as national security.

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Climate change increases the frequency, intensity, and duration of extreme weather events

Global emissions of greenhouse gases are warming our climate system, which in turn is increasing the frequency and/or severity of weather events.[6]

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation. IPCC's Assessment Reports cover the full scientific, technical, and socio-economic assessment of climate change. Their reports are becoming more concerning.

According to the Fourth Assessment Report (AR4), released in 2007, the warming of the earth's climate system was indisputable, the AR5, released in 2013, stated that the human influence on the climate was clear. The evidence collected after the release of the AR5 showed that the increase of CO2, methane, and nitrous oxide in the atmosphere over the industrial era was the result of human activities and that human influence was the main driver of many changes observed across the atmosphere, ocean, cryosphere, and biosphere.[7]

The AR6 makes clear that it is now an established fact that human-induced greenhouse gas emissions have led to an increased frequency and/or intensity of some weather and climate extremes since 1850.[8] Evidence of observed changes and attribution to human influence have strengthened for several types of extremes since the AR5, such as extreme precipitation, droughts, and compound extremes (including fire weather).[9]

Unsurprisingly, the International Disasters Database finds that extreme weather events, driven by climate change, are on the rise. In 2021, a total of 432 catastrophic events were recorded the world over, which is significantly higher than the average of 357 annual disaster events between 2001-2020.[10] Floods dominated these events, with 223 on record, up from an average of 163 annual flood occurrences between 2001-2020.[11]

Extreme weather events are turning into disasters more frequently

Climate change and its impact exposes and exacerbates existing vulnerabilities and inequalities between rural, regional, and urban areas, Indigenous and non-Indigenous peoples, those with health and disability requirements, and between generations, income, and health status, all of which, increase the relative climate change risk faced by some groups and places.[12]

Extreme weather events alone are not disasters. Disasters occur when extreme weather encounters people and things of value, and when the outcomes of hazards exceed our ability to avoid, cope, or adequately recover from them.[13]

Climate change is driving worsening destructive extreme weather events in a range of different ways around Australia. From more severe bushfire seasons and intense heatwaves to intensifying future cyclones, raising the risk of flash flooding, and exacerbating droughts in parts of the country.[14]

FIGURE 1 PROJECTED CHANGES IN TYPES OF NATURAL HAZARDS

- Cat 4-5 Tropical Cyclone frequency: **Increase** *(Low - Medium)*
- Tropical cyclone latitude: **Southerly extension more likely than northern** *(Low)*
- Extreme hourly to daily rainfall: **Increase** *(High)*
- Flood risk factors: **Increase more likely than decrease** (*Low* in general, *High* for coastal and flash flooding)
- Extreme fire weather: **Increase more likely than decrease** (*High* in general, *Medium* for east)
- Large hail (>2.5cm): **Unclear**
- Tropical cyclone frequency: **Decrease** *(Medium)*
- East coast low frequency: **Decrease** (*High* for winter, *Low* in summer)

Source: Royal Commission into National Natural Disaster Arrangements[15]

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In 2015, Australia and other members of the United Nations adopted the Sendai Framework for Disaster Risk Reduction 2015-2030. The Sendai Framework aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods, and health and in the economic, physical, social, cultural, and environmental assets of persons, communities, and countries.[16] To achieve these ends, the framework is explicitly built around the following goal:

> "Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political, and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.[17]"

According to the Royal Commission into National Natural Disaster Arrangements (the Royal Commission), three main elements contribute to disaster risk:

- **Natural hazards** are defined as a natural process or events that may lead to the potential loss of life, injury, or other negative ramifications, including on mental and physical health, property, the economy, communities, and environmental assets,
- **Exposure** refers to people, property, or other assets present in hazardous regions that are subject to potential losses, and
- **Vulnerability** is determined by physical, social, economic, and environmental factors or processes that increase the susceptibility of an individual, community, asset base, or system to the impact of hazards.[18]

Australia is highly exposed to climate change and extreme weather events

AR6 contains a chapter on Australasia, which concludes that Australia is one of the most vulnerable developed countries to climate impacts. Working Group II's chapter states that Australians are already seeing climate change made manifest in their daily lives, mostly driven by the many extreme and devastating weather events that impact communities and ecosystems on a grand scale.

> "Climate trends and extreme events have combined with exposure and vulnerabilities to cause major impacts for many natural systems, with some experiencing or at risk of irreversible change in Australia...Further climate change is inevitable, with the rate and magnitude largely dependent on the emission pathway.[19]"

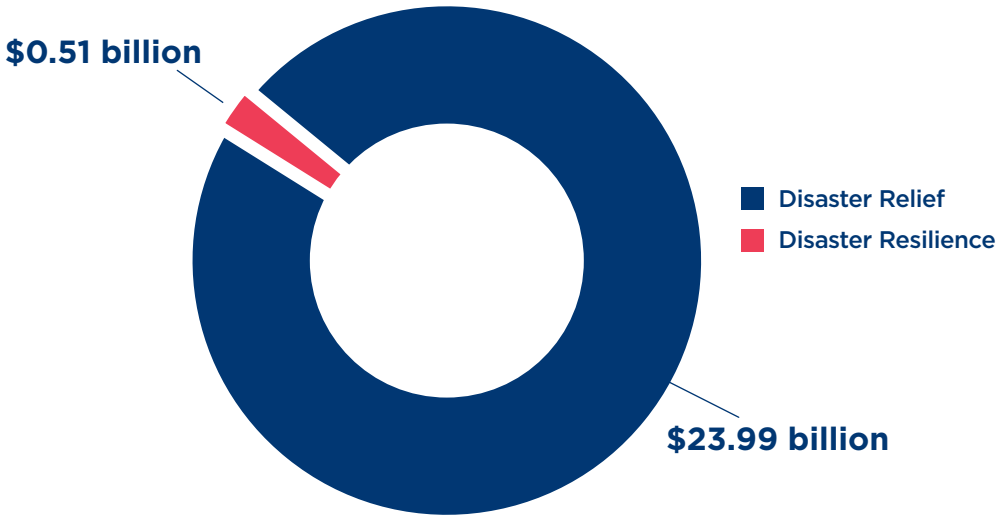
Climate change is a significant challenge to society and to the ability of individual and collective decision-making to enact meaningful responses. In many respects, climate change represents the greatest market failure the world has ever seen. Climate change engenders catastrophic and cascading risks to physical systems, ecosystems, and economy and society,[20] and we must do all we can to lessen the future impact. Yet the impact of climate change is already being felt. We are now paying for our inaction and, if we continue to ignore the risks, it will be worse. This is reflected in the latest Global Risks Report 2022, which lists climate change inaction as the number one long-term global threat, as well as being identified as the risk with the potentially most severe impacts over the next decade.[21]

PART TWO:
EXTREME WEATHER EVENTS ARE COSTING MORE

Between 2005-2022, the federal government spent $23.99 billion on disaster recovery and relief. Yet, they have spent comparatively little on future-proofing and disaster resilience, as can be seen in Figure 2.

That said, the federal government has recently committed up to $200 million per annum through the Emergency Response Fund for disaster prevention and resilience.[22] If matched by state, territory, or local governments, this would provide up to $400 million annually.[23] While this increase in available funds is commendable, more needs to be done.

FIGURE 2 FEDERAL GOVERNMENT EXPENDITURE ON NATURAL DISASTERS, 2005-2022



Source: Australian Government, Final Budget Outcome, 2005 to 2022 (2022 prices)

Science is unequivocal about the fact that we are living with the consequences of climate change. We are experiencing its effects now. We must begin to adapt to the new reality with an increasing focus on resilience while continuing to do all we can to limit the warming of the planet.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The Government's role in disaster relief is increasing as events become more severe

Australia's national arrangements for coordinating and delivering disaster management are complicated and fragmented, with roles and responsibilities split and overlayed between various levels of government, as well as between numerous departments and organisations. There is no shortage of different frameworks at play, each with its own plans, bodies, committees, and stakeholders.[24]

Prior to the 2022-23 budget, responsibility for disaster relief was handled by the Department for Home Affairs. In 2022-23, this changed to the National Recovery and Resilience Agency (NRRA). The NRRA was established in response to the Royal Commission into National Natural Disaster Arrangements, and on July 1, 2022, it was announced that the agency was to be situated within the Home Affairs Portfolio. This relocation allowed the NRRA the opportunity to work more closely with Emergency Management Australia (EMA),[25] which was the country's national disaster management organisation, and is housed within the Department of Home Affairs. The EMA managed the Australian Disaster Response Plan (COMDISPLAN) under which states and territories could seek Federal assistance (including Defence assistance) when the scale of an emergency or disaster exceeded or exhausted the jurisdiction's response capacity and capabilities.[26]

As of September 1, 2022, the NRRA and the EMA merged to form the National Emergency Management Agency (NEMA). This change aims to deliver a more coordinated approach to emergencies and prepare for future hazards and extreme weather events.[27]

Over the course of Australia's history, when it comes to disaster recovery and government intervention, national resource-sharing arrangements have evolved from being mostly informal. Much of the ebb and flow of resource movements used to take place with very little in the way of underlying documentation or policy. Early resource movements were largely based on personal relationships, and at best, bilateral agreements. There was very little in the way of anything resembling a 'national picture' or a shared common operating strategy.[28]

The first version of the Arrangement for Interstate Assistance (AIA) was drafted in 2013, which laid out arrangements for resources to be shared across Australia and New Zealand.[29]

Australia has several frameworks and strategies that guide national arrangements across all phases and stages of natural disaster management. As stated in the Royal Commission, these frameworks and strategies fall into four general categories:

- National approaches to mitigating and adapting to disaster risk and improving resilience (this is embodied in the National Disaster Risk Reduction Framework, of the NDRRF), National Strategy for Disaster Resilience, and the National Climate Resilience and Adaptation Strategy
- A national approach to disaster preparedness for effective response and recovery (the Australian Disaster Preparedness framework)
- National approaches to promote interoperability between and within jurisdictions of equipment, data, and information
- Funding arrangements between state and federal governments, through the Natural Disaster Relief and Recovery Arrangements (NDRRA)

Responding to extreme weather events, including the provision of relief and recovery assistance to disaster-affected communities, is predominantly the responsibility of state and territory governments. These disasters are likely to result in large-scale expenditure by state governments in the form of disaster relief and recovery payments as well as infrastructure reconstruction.[30] To make sure that the states don't shoulder the burden alone, under certain

circumstances, the Commonwealth has made provisions for partial reimbursement of state expenditure and estimated reconstruction costs.[31] The NDRRA is the key mechanism that facilitates this, by defining automatic triggers for federal funding assistance with state government disaster recovery.

The NDRRA makes provisions for state governments to activate relief and recovery assistance immediately following a disaster, without the need to seek approval from the federal government. Under the NDRRA, the Australian government provides financial assistance that amounts to a 50-75 per cent reimbursement rate.[32] The NDRRA operates as a financial safety net for states when they experience frequent and/or severe natural disasters.

As the cost of aiding disaster-affected communities increases, so too does the level of financial support from the federal government to the state and territory governments.[33]

Local Government Areas (LGAs) are subject to varying rules from state and territory governments. In many cases, the damage to local infrastructure maintained by councils is more severe than for any other level of government.

Measuring the costs of extreme weather is complicated

The destruction of a home or a tragic loss of life is usually the most compelling example of loss associated with extreme weather events. While these acute losses are felt by those directly involved, economic and social costs are borne by all Australians.

Measuring all costs directly attributable to an extreme weather event is difficult. Yet all households pay in a myriad of ways, most directly through:

1. Direct repairs to damage (for both insured and uninsured)
2. The increased cost of living through higher price spikes
3. Government payments for recovery and repair paid through taxation revenue

The first affects those most closely associated with the damage, the second affects regions and sometimes the whole of Australia, and the third affects all taxpayers.

In addition to these direct costs, there are the broader costs of reduced economic (and social) activity. These effects, such as homelessness, injury, loss of work, and mental health disorders (among others), are far more difficult to accurately assess.

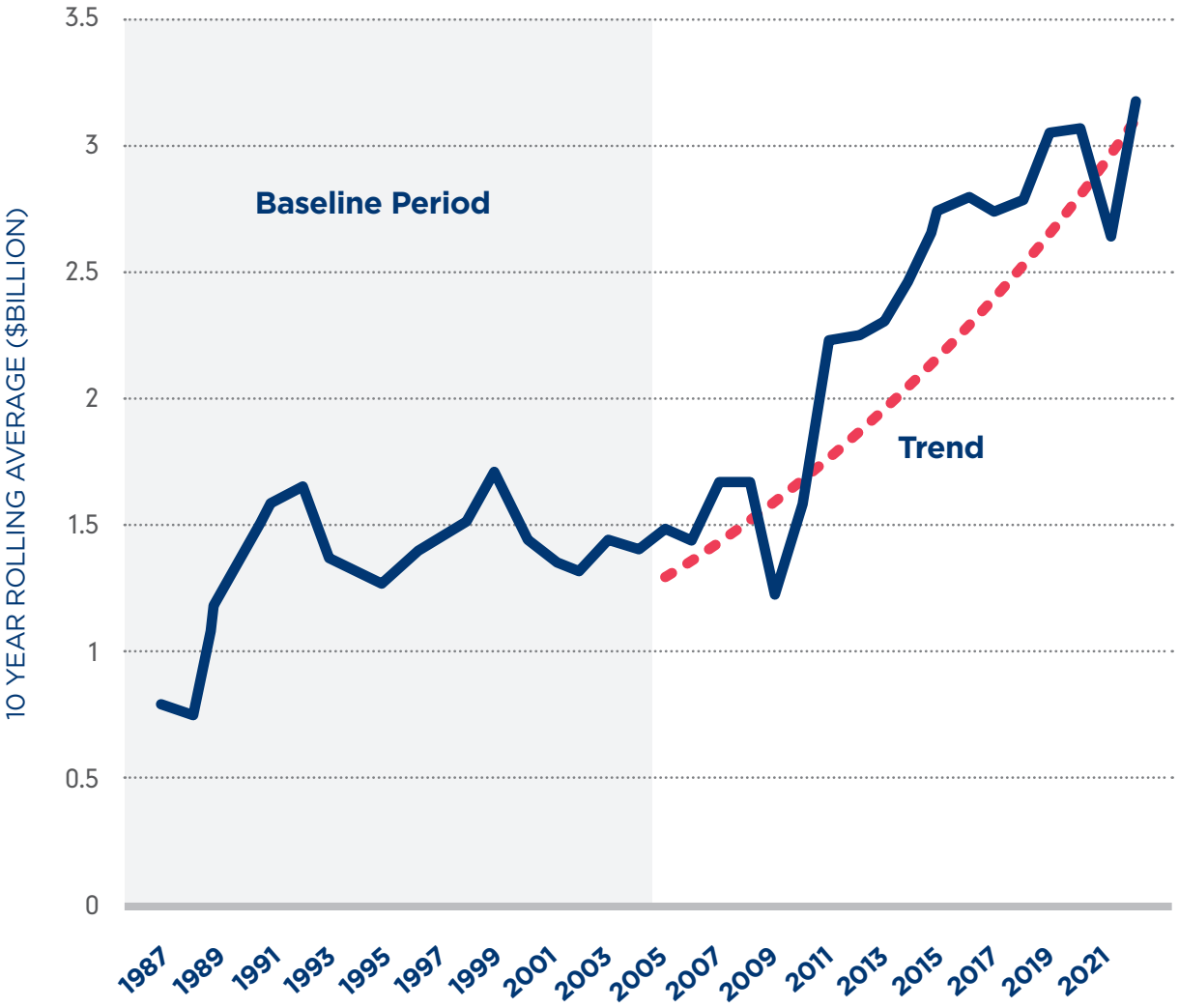
A more detailed discussion of these costs is included in Part 3. First, we assess the direct costs identified above to understand the direct costs of disasters borne by households. Insurance claims data provides the most granular measure of loss due to extreme weather events. Using that as a basis, the losses associated with extreme weather events since 2005 have been accelerating at an increasing rate.

Greater frequency and severity of disasters have increased insurance costs

Australia is a nation on the frontline of climate impacts. Despite the growing body of evidence and data available that shows an increase in extreme weather events, they do not readily account for the increasing frequency and severity at which these events impact people and the built environment.

The widest available data on extreme weather costs is insurance claims. While the value of insured losses only covers a fraction of the variety of ways in which disasters affect people, insured losses offer a suitable proxy for the extent to which disasters are having an overall fiscal impact on Australians, both in frequency and severity.

FIGURE 3 INSURED COST OF NATURAL DISASTERS



Source: ICA, 2022 prices

In Figure 3, the report uses a baseline period of 1986-2005, which draws on the same baseline as the IPCC, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), and the Climate Measurement Standards Initiative (CMSI). In the period since then, the ten-year rolling average of the value of yearly insurance claims has doubled from around $1.5 billion to over $3 billion.

Direct costs of extreme weather events are forecast to increase at an accelerating rate

The trend in insured costs of extreme weather events since the baseline period will be used as the basis for projecting future costs as they account for both the severity and frequency of disasters.

A trendline has been fitted to Figure 3 to reflect the rate of increase that has occurred to date, as well as other factors which contribute to disaster costs rising at an increasing rate.

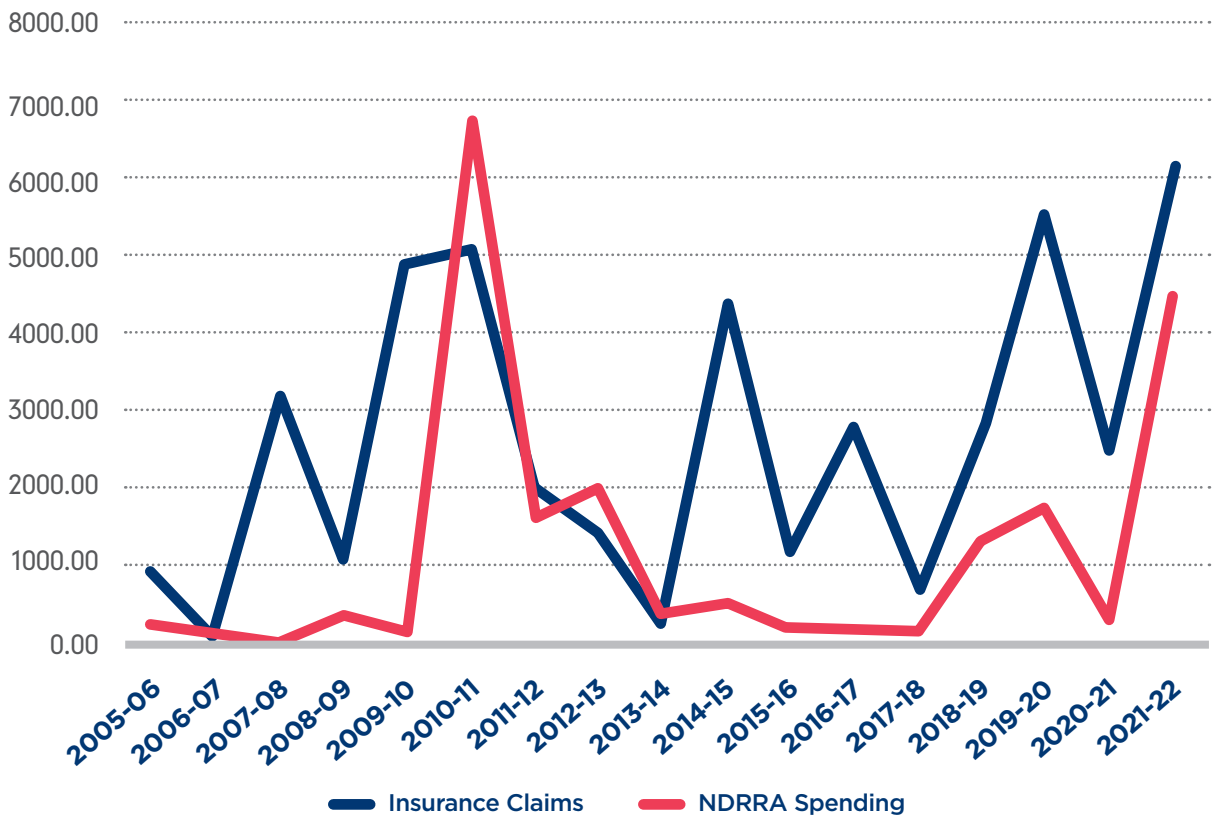
Insurance costs do not reflect the full value of the personal economic loss. Following the 2013 Blue Mountains bushfires, a survey conducted by Legal Aid NSW found that 28 per cent of homes that suffered total damage were not insured. Further, among those who were insured, the average underinsurance of buildings was 28 per cent of the rebuilding value, and the average underinsurance of contents was 48 per cent of the replacement value.[34]

Data on non-insurance and underinsurance rates are difficult to obtain. We recommend further analysis to identify these rates, which would help address underinsurance in Australia. For our projection, we use the non-insurance rate as identified in the Legal Aid NSW survey. This is consistent with industry expectations and other publicly reported figures. This is subsequently combined with the lower estimate of underinsurance for a conservative assumption.

> The Commonwealth expenditure on disaster recovery and resilience (through the NDRRA) averaged 61 per cent of insured costs in the period between 2010-2022.[35]

As extreme weather events become more frequent and severe, the cost to government will increase alongside the cost of insurance claims.

FIGURE 4 COMMONWEALTH NDRRA EXPENDITURE AND INSURANCE CLAIMS, 2010-2022



Source: ICA and Commonwealth Budget Papers 2010-2022

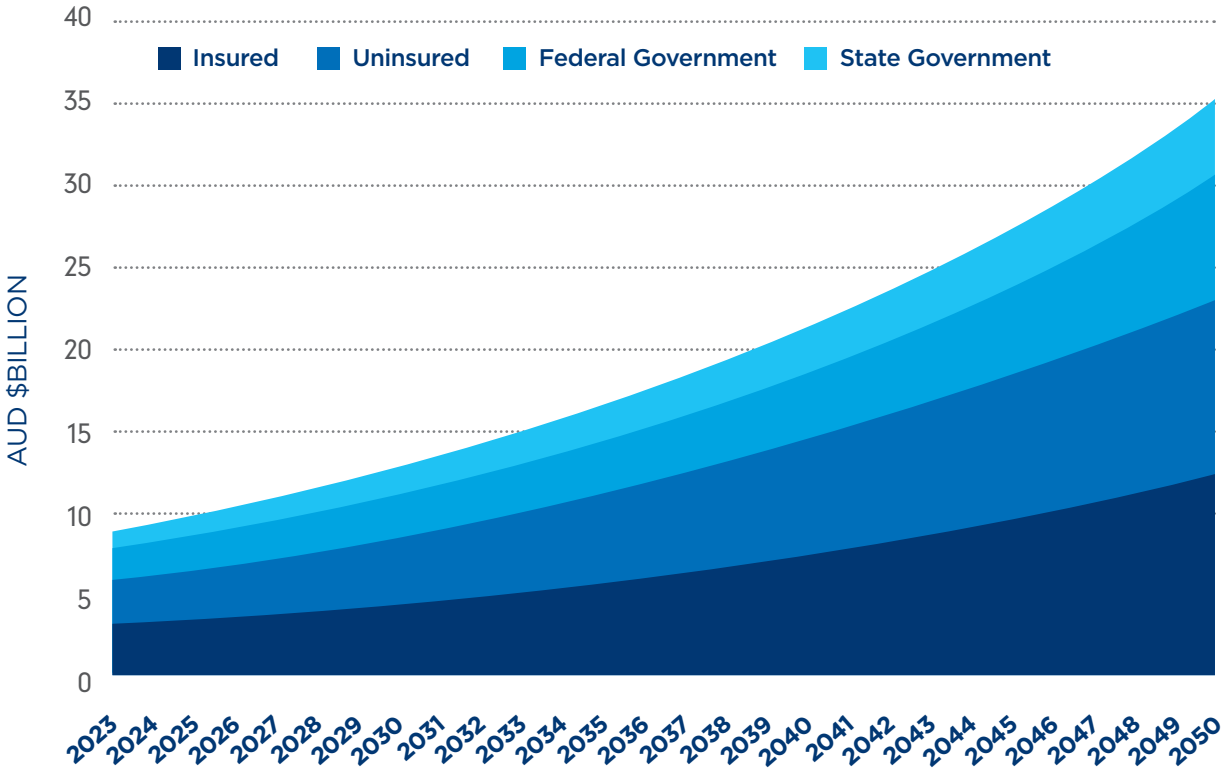
The Commonwealth expenditure includes costs such as emergency food, the demolition or rebuilding of select houses to restore them to a habitable condition, restoration or replacement of essential public assets, infrastructure losses, and disaster payments.[36] While in most years, Commonwealth expenditure on disaster payments is much lower than insurance claims, the government expenses peak more severely than insurance claims during the most extreme disasters.

Based on NDRRA guidelines and the trigger mechanism worked into the funding framework, state and territory governments must pay between 25-50 per cent of the disaster-related costs they incur, while the Commonwealth covers 50-75 per cent. For the projections, we assume that state costs fall in the middle of this range, meaning that they cover 32.5 per cent of disaster recovery costs. This assumption is consistent with estimates made by the Productivity Commission in 2014, which suggested the federal share of NDRRA funding was approximately 60 per cent.[37]

Local government expenditure on disaster recovery is excluded from the NDRRA, unless provided for through the state governments. It is therefore omitted from the proceeding forecasts, making for a conservative estimate.

Assuming the proportions of insurance costs to other direct costs are fixed in the period until 2050, and the trend observed in the 2005-2022 period continues, the time-path of direct costs is projected in Figure 5.

FIGURE 5 PROJECTED COSTS FROM NATURAL DISASTERS, 2023 TO 2050



Source: author projections

The projections show a dramatic rise in the cost of damage to households and governments, which is in line with the predicted increased frequency and severity of extreme weather events.

The projection in Figure 5 averages the costs of disasters, which fluctuate by year, to develop a smoothed projection. In reality, the projection represents the rolling midpoint, with some years higher and some lower, always averaging to the projection.

These estimates are similar to other studies, though more conservative than previous efforts to model the cost of disasters, such as a 2021 Deloitte study,[38] which also included social costs and intangible costs such as loss of life or injury.

In limiting the projection to the direct costs to households and the government, we can estimate the average that every Australian household is, and will be, paying as extreme weather events increase in frequency and severity.

We acknowledge the intangible costs and explore these further in Part 3.

The table below shows that select economic costs from extreme weather events will grow by 5.13 per cent each year (before inflation) and reach a total of $35.24 billion in annual costs (in 2022 dollars) by 2050.

TABLE 1 PROJECTED SELECT DIRECT COSTS OF NATURAL DISASTERS ($, B)

YEAR	2023	2030	2040	2050
Federal Government Costs	1.96	2.78	4.59	7.57
State Government Costs	1.18	1.67	2.75	4.54
Insured costs	3.21	4.55	7.51	12.37
Uninsured costs	2.79	3.96	6.52	10.76

Source: author projections

Based on the above projections and ABS population forecasts, Australian households will be paying an average of $2,509.16 (2022 dollars) every year for extreme weather events by 2050.[39] This is an increase of almost 200 per cent from the 10-year rolling average of $888 per household. This loss is in the form of direct damage or government payments using taxation revenue.

Not only that, but certain communities will be at greater risk of damage, making for a highly unequal distribution of the cost. Nevertheless, every Australian taxpayer will be contributing to the $12.1 billion used to pay for disaster recovery and the increased cost of insurance.

As noted in Part 1, as extreme weather events are becoming more severe and widespread, the Governments take a more active role in recovery and support payments. We expect that as these disasters increase, the identified uninsured costs are increasingly allocated to insurers (through incentivising insurance) or to Government.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PART THREE:
EXTREME WEATHER EVENTS AFFECT EVERY AUSTRALIAN

Various forms and consequences of climate change can result in varying degrees of economic losses associated with property damage, loss of income and employment opportunities, and reduced economic activity and productivity, population displacement, threats to mental and physical health, loss of attachment to the natural environment, and social conflict and inter-group violence.[40]

The indirect impacts of disasters are wide-ranging and variegated

As sea levels rise exacerbating hazards along our coastlines, heatwaves intensify, bushfire seasons become more dangerous, droughts worsen in parts of the country, and the risk of flash flooding increases in other parts, there will be major disruptions of key infrastructure and services such as energy supply and transmission, communications, food and water supply, and transport systems (among others).[41]

There is an overwhelming amount of evidence suggesting that climate change influences the ability of businesses and industries to produce goods and services. These impacts can be immediate, for example, if flooding causes a business to close temporarily, or they can occur over time in a more dynamic sense, for example, increasing the costs of operating in a specific location to the point where relocation or closure is the only viable options for some businesses.[42] Additionally, a business may incur direct impacts, such as interruption to daily operations and damage to physical assets, or indirect impacts through public policy or market changes such as rising demand for flood resilience materials or increased competition for certain resources.[43]

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A 2018 study revealed that uninsured losses from extreme weather events are likely to result in heavy losses for banks, which emphasises not only cascading indirect impacts but also the longer-term climate change risks that should be taken into consideration in policy-making.[44]

Not only that, but climate risks are influenced by a variety of interdependencies, for example, between different industries, between businesses and infrastructure, between climate and resource availability, and between businesses and socioeconomic processes.[45]

Thus, the wider influence on economic loss, public infrastructure damage, and industry impacts (domestic and internationally) are risk factors that need to be monitored. For example, flooding can disrupt transport routes and infrastructure, affecting supply chains and potentially altering demand for certain products.[46]

A 2021 report commissioned by the World Wide Fund for Nature-Australia and written by researchers at The University of Sydney estimates that the 2019-20 bushfires cost the Australian agriculture industry between $4 billion and $5 billion. These costs include damage to farm buildings and equipment as well as a reduction in farmland values, loss of crops and more than 100,000 livestock deaths, and at least $279 million in health impacts from smoke inhalation by farmers and other food workers.[47]

These wider impacts can also be seen in the case of the 2022 East Coast Floods in Australia, where damage to roads and rails during the 2022 floods (as well as the impact of the Omicron variant of COVID-19) resulted in many supermarkets across Australia experiencing food shortages, as well as food sales decreases, and certain non-food item sales rising.

Climate change is worsening mental health outcomes

There is a strong link between mental health disorders and extreme weather events. There is a vast body of literature that documents the mental health consequences of extreme weather events. These impacts include increased rates and occurrences of those with anxiety and mood disorders, acute stress reactions and post-traumatic stress disorders, sleep disruption and deprivation, and suicide and suicidal ideation.[48]

Other consequences might include the effect on individuals and communities in their everyday life, perceptions, and experiences, having to cope, understand, and respond to climate change and its implications. This may also trigger reduced daily activities and the loss of a sense of self and place, potentially exacerbating existing mental health risks.[49] These responses can linger for months, or even years after an event.

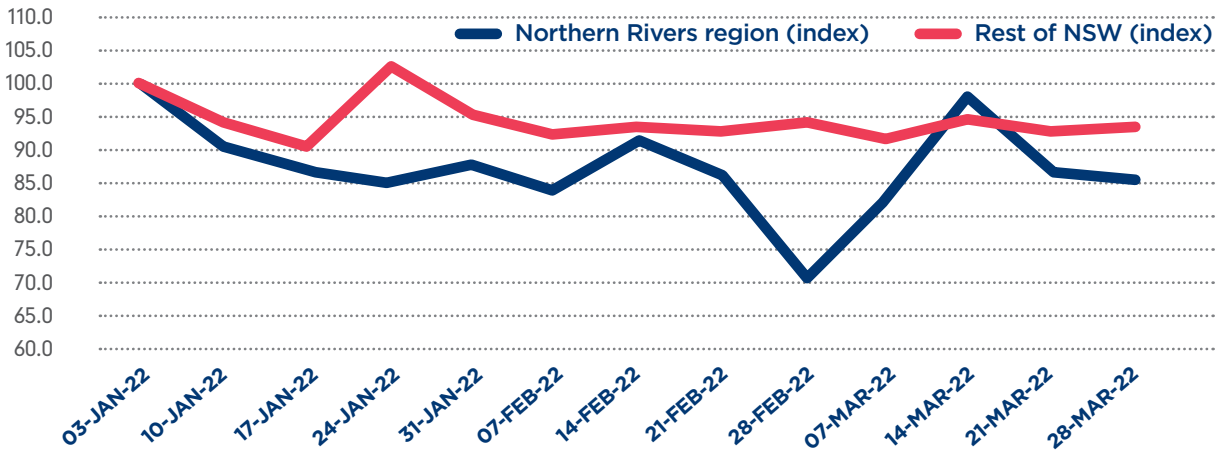
CASE STUDY: 2022 FLOODS

Throughout the February/March 2022 flooding events across Australia, thousands of houses were damaged or destroyed, and with widespread evacuations, power outages, and mobility issues, the sale of food fell significantly (see Figure 6).[50]

In NSW alone, over 4,000 properties were deemed uninhabitable, over 10,000 properties were damaged, and over 8,000 were inundated with water.[51] In the Tweed Shire, the floods resulted in $80 million of damage to roads, in Lismore, 90 per cent of their 1200 km road network suffered severe and extensive damage, which the Lismore City Council

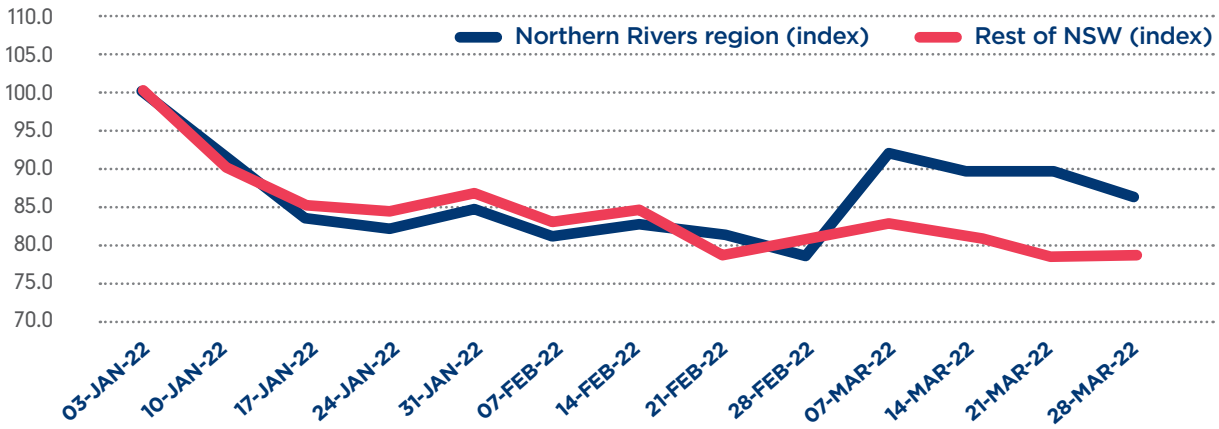
INDEX OF SUPERMARKET FOOD SALE (THIRD WEEK OF JANUARY 2022 =100)

FIGURE 6 INDEX OF SUPERMARKET FOOD SALE (THIRD WEEK OF JANUARY 2022 =100)



Source: ABS, weather and natural disaster impacts on the Australian national accounts[56]

FIGURE 7 INDEX OF NON-FOOD SUPERMARKET SALES (THIRD WEEK OF JANUARY 2022=100)



Source: ABS, weather and natural disaster impacts on the Australian national accounts[57]

estimated would cost approximately $150-200 million to rebuild and repair.[52]

Across NSW and QLD, residential and commercial properties were damaged, which resulted in an increase in non-life insurance claims and governments increased spending on defence assistance for affected areas.[53] Additionally, non-food sales, such as communication items and disposable plates and cutlery, saw a sharp increase over the same period (see Figure 6).[54]

Over the course of the floods and storms that battered Australia's east coast, over 230,000 insurance claims were made. The Insurance Council of Australia estimated that there would be approximately $5.275 billion in insured losses and has found the floods to be the most expensive in Australia's history, as well as the second costliest disaster overall.[55]

In the March quarter, non-life insurance claims rose 18.6 per cent, reflecting $2.8 billion paid due to the floods and storms. Non-life insurance claims are now at the highest they have been, $584 million higher than claims seen during the 2020 bushfires.

Not only that, but the cost to various industries, agriculture in particular, has been catastrophic. The floods resulted in devastating losses of livestock, crops, and machinery, with NSW Farmers president, James Jackson, saying that he expected inflationary pressures to arise because of the ongoing floods.[58]

In Queensland, more than 2,250 primary producers were affected across 17 local government areas, with losses estimated at more than $250 million. Losing crops or losing the ability to manage crops has far-reaching impacts on Australians across the nation.[59]

Disruption of the supply chain, whether through infrastructural damage or crop loss, meant that production was displaced, reducing regional output and incomes.[60]

Households are paying more

The 2022 floods also demonstrate how extreme weather events can be economically disruptive to those who aren't immediately affected. This may be through supply chain disruption or, increasingly, a rise in consumer prices.

The nationwide consumer price index (CPI) measure for fruit and vegetables grew by 5.8 per cent in the June quarter, compared to 1.8 per cent for all goods and services.[61] This difference in prices, which the ABS suggests was brought about by flood-induced agricultural losses, resulted in all Australian households spending more on produce.

The Australia-wide average cost of fruit and vegetables spiked by 4 per cent over a three-month quarter, shifting $153 million in costs onto Australian households.

2021-22 has already been a bad year for natural disasters, particularly because of the floods. Between government expenses, insurance costs, uninsured damage, and increased prices due to supply chain shortages, Australian households paid an average of $1,532.71 due to natural disasters, making an inflationary environment much worse.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CONCLUSION

On average, by 2050, the average Australian household will be paying $2,509.16 a year because of increasing extreme weather events (which excludes intangible, indirect costs). This figure is relatively conservative as it does not include intangible costs such as increases in grocery prices, fuel prices, or social impacts.

Whether insurance is paying for it, whether the government steps in to relieve those impacted, we all must bear the cost.

To date, the government has spent far more on recovery and relief than on resilience. As climate change worsens, we must focus more on resilience, to protect ourselves as much as possible from worsening conditions. While the federal government has committed $200 million per year for disaster prevention and resilience through the Emergency Response Fund, which it hopes will be matched by state, territory, and local governments, more yet needs to be done.

We recommend more of the federal and state government budgets be apportioned to said resilience building and future-proofing, moving away from a reactionary model that disproportionately allocates funds into recovery rather than resilience.

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