Policy implications of future increases in extreme weather events due to climate change

Karl Sullivan of the Insurance Council of Australia outlines the shifts required to increase future communities' resilience to more extreme weather events.

Abstract

The first part of this extracted paper focuses on the importance of community resilience and what makes a community resilient. The second part focuses on the contribution of insurance to resilience. The third part examines possible ways to improve community resilience in the areas of emergency and recovery planning and financial risk mitigation against extreme events due to climate change

Introduction

Improving the community's ability to withstand and recover from extreme weather events, particularly those predicted as a result of climate change, requires an elementary shift in approaches to:

- risk management of the built environment; and
- policies and human behaviours that underpin community resilience to extreme weather events.

The general insurance industry has recently released a paper detailing the policy shifts required in order to increase community resilience to a future with more extreme weather events. This brief extract addresses two of the six policy elements required. A full version of the paper is available at www.insurancecouncil.com.au .

The method employed in this document is to focus on the concept of community resilience as a function of the built and social environment.

General insurance and extreme weather events

Weather and climate are core business for the general insurance industry.

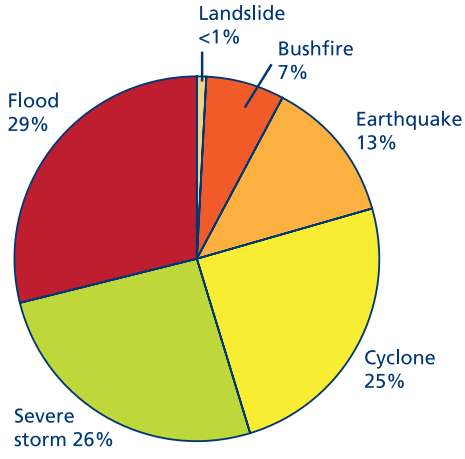
In Australia 19 of the 20 largest property losses in the previous 40 years have been weather related. It is in this context that general insurance products provide essential risk cover for Australians. The industry provides a financial recovery mechanism from weather related catastrophes by evaluating, pricing and spreading the risk of such events, and then paying claims when they arise.

The general insurance industry therefore has a heightened awareness of climate change driven by predictions of an increasing number of extreme weather events.

For some decades the global industry has been involved in research concerning the impacts of extreme weather events on communities and has keenly followed the results of climate change research as it has been matured by the scientific community.

There is agreement in the scientific community that a level of climate change can now be described as 'locked in' or as 'unavoidable'. This is regardless of even the most aggressive mitigation and greenhouse reduction proposals. These 'locked in' changes will arrive on the back of an Australian environment that already has a rich history of weather related natural disasters. On this basis there is a strong need to continue to adapt to the current level of extreme weather events that occur in Australia as well as to the predicted increases in extremes.

Figure 1: Average Proportional Cost of Natural Disasters by Type 1967–1999 BTE (2001).



The focus for the general insurance industry is to assist in increasing community resilience to extreme weather events as they manifest now and how they may manifest into the future.

What is Resilience?

Resilience in the context of an extreme weather event is the measure of a community's or individual's ability to respond effectively to change or an extreme event.

Communities that develop a high level of resilience are better able to withstand a crisis event and have an enhanced ability to recover from residual impacts. Communities that possess resilience characteristics can also arrive on the other side of a crisis in a stronger position than pre-event. For example a community with:

- well rehearsed emergency plans;
- superior fire mitigation processes in the cooler months;
- appropriate building controls, suitable to local hazards and risks; and
- widely adopted personal and business financial mitigation measures (eg insurance suitable to the risks)

is likely to suffer less during an extreme fire event and is likely to be able to recover quickly both financially and physically, and as a community.

Communities that exhibit poor resilience are unable to effectively absorb the impacts of extreme events and therefore are prone to suffering greater physical, financial and societal damage. Recovery from the extreme event takes longer and the final results are often that the community is permanently weakened and prone to further impacts from smaller scale events. For example a community with:

- poor fire mitigation processes;
- inappropriate building controls & land use zoning; and
- a low take up of personal and business insurance

that faces the same extreme fire event as in the previous example is likely to suffer greater financial, physical, emotional and societal impact and could be expected to take longer to recover, if it recovers at all.

It's not just the weather that is changing

It is important to recognise that an increase in the scale and frequency of extreme weather events is not the only factor that will lead to potentially greater impacts on individuals, businesses and the community.

Urban development and growth is literally changing the Australian landscape. Prosperous communities are becoming more densely populated and construction and rebuilding costs increase each year as do the values of the individual assets that can be found inside a geographic area.

As an example, Rhodes in NSW underwent significant (but typical) urban development during the last 70 years.

Figure 2: High vs Poor Resilience Communities – Response to & Recovery from a Crisis Event.

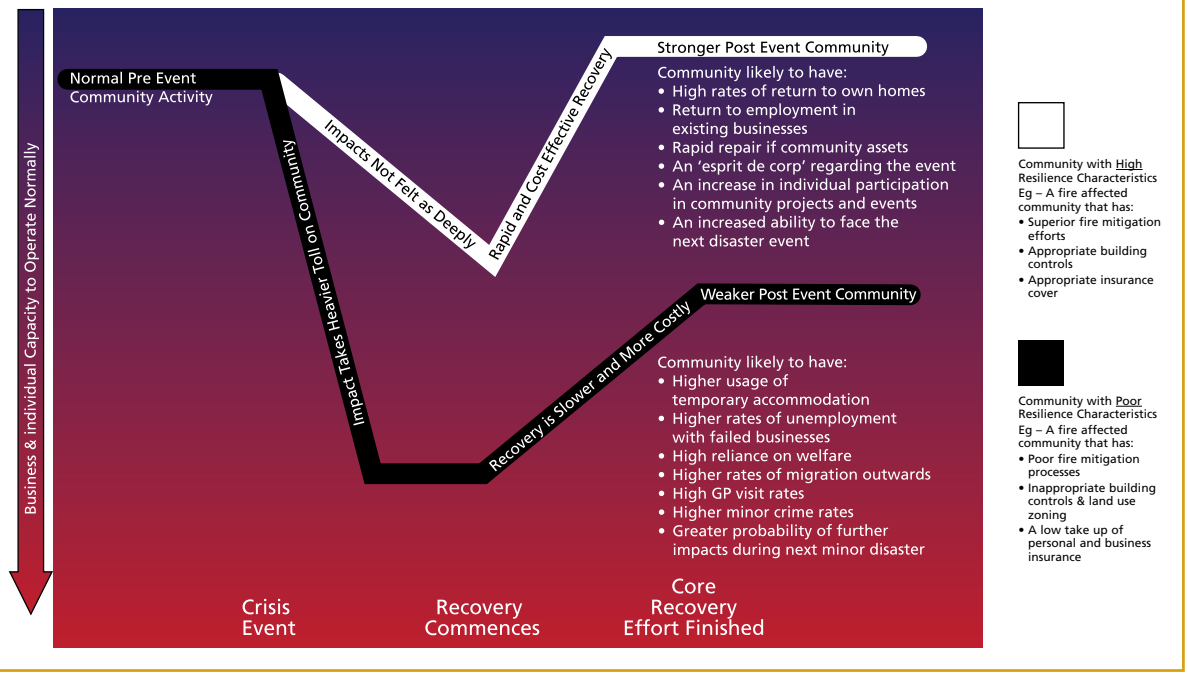


Chart data provided by Insurance Council of Australia.

The characteristics of a resilient community.

Models show that an extreme hail event occurring in this location in 1930 would have cost an equivalent of $5 million. However, due to the increased development in this area, the changes in the nature of its use and a subsequent increase in the value of the assets to be found in the area – the same storm occurring in 2007 yields a potential damage bill of $900 million.

Community resilience to extreme weather events relies fundamentally on the nature of the community and the geography that it occupies. As we move forward into a climate presenting more extreme weather events it is critical that we note and, where necessary adapt urban planning and development to address the growing risks and the consequential losses to the community.

The nexus between community resilience and extreme weather events under climate change

Resilience can be characterised by six key ingredients, which in turn are driven by the community's understanding and acceptance of the risks they face in their environment.

The policies, procedures and practices that enshrine the community's approach to maintaining resilience are captured by legislation and regulation at local, state and federal government levels. Building codes, state planning legislation, local government by-laws, zoning arrangements, emergency planning arrangements and even taxation arrangements all serve to guide the community in maintaining a safe and profitable approach to life and business.

This spectrum of regulations and arrangements have been formed over time and have been based upon historical assumptions about the nature, frequency and intensity of extreme weather events and coastal sea levels. For example coastal planning guidelines have been based in part on the assumption of a certain mean sea level for the life of a development. Building codes and standards have also been based upon static assumptions of historic gust wind speeds, and many stormwater mitigation and drainage systems have been designed for historic 1:100 inundation events.

So far, this approach has delivered a fitting balance between the risks and costs to the community. However, present day climate change modelling indicates that many historic assumptions used in making decisions for life-cycle management of the built environment and community operation are no longer appropriate.

This extract will provide a summary of policy conclusions for community emergency planning and financial risk mitigation.

Community emergency & recovery planning

Australian governments have undertaken considerable efforts in recent years to improve emergency response and recovery capabilities in Australia. This has involved investment in training and resources at the tactical level (SES, Fire Brigades etc), at the operational level (State Recovery Committees etc) and in many instances at the community level (local government emergency planning and guidance for personal emergency planning).

Both the States and Commonwealth should continue robust development of Tactical Response Capabilities and inter & intra State Coordination Capabilities. Development of these capabilities must keep pace with any observed change in the frequency, intensity and nature of extreme weather events.

It is recommended that the Australian Emergency Management Committee adopt a standing agenda item regarding climate change observations and weather impacts, to facilitate discussion about growing needs in the emergency services environment to face new or increased threats.

It is equally important that the general insurance industry maintain pace with advancements in government response arrangements, so that delivery of insurance services 'at the time of greatest need' following an extreme weather event is as efficient as possible. In this context the general insurance industry will maintain a continuous improvement program for the Industry Catastrophe Coordination Arrangements, first developed in 2007.

Financial risk mitigation in the community

Effective and efficient insurance markets remain a fundamental feature of advanced economies. The provision of insurance enables economic agents to cost the risk of a given activity and if appropriate, transfer this risk according to their own risk profile. This profiling of risk enables economies to more flexibly and efficiently allocate resources, thereby encouraging stronger investment/growth leading to higher living standards.

In other words, general insurance serves as an economic enabler, with its contribution to economic growth being:

- the important task of pricing risk and "monetising" risky activity;
- facilitating the allocation of resources across the wider economy;
- reducing transaction and friction costs as parties seek to transfer risk from the adverse to those more willing to take on risk;
- supporting economic development by facilitating activities/investment of a higher risk;
- reducing the burden on Government/public sector resources in the event of a major event or catastrophe, thereby transferring the cost of recovery from the public to private sector; and
- supporting the principle of mutual obligation and personal responsibility within individuals and communities by encouraging risk adaptation and risk mitigation strategies.

Personal risk offsetting through the adoption of appropriate insurance cover for an individual's significant assets remains the best way for community members to protect themselves against the residual risk (post mitigation) of extreme weather related events.

A resilient community will have a good level of general insurance cover access and availability, allowing individuals recourse to financial re-imbursement should assets and belongings be damaged or lost due to an insurable event.

Communities who do not have adequate levels of insurance will have a greater reliance on government relief and community appeals – placing an additional burden on the community, the government and ultimately on all tax payers. Personal adoption of financial risk mitigation against future events remains the most cost effective and resilient course of action.

Unfortunately there are obstacles to achieving comprehensive levels of insurance coverage in communities. In May 2007, the Insurance Council released the report "Non Insurance: Who, Why and Trends". This study, undertaken by the Centre for Law and Economics at the Australian National University profiled non insurance in the Australian community.

Using data from the ABS Household Expenditure Survey, the Non Insurance Report found that of Australia's 7.7 million residential households, some 1.8 million or 23 per cent did not have a building or contents insurance policy. The report also utilised previously unpublished data from the Roy Morgan Single Source Survey (RMSS) to profile the characteristics and demographics of the non insured population of Australia.

Who are the non-insured?

Non insurance is closely correlated to many demographic variables such as life stage, age, location, education and country of birth. In particular, non insurance tended to be associated with households:

- that were young or at earlier stages of life;
- living in cities and in particular localities and regions in cities;
- born in non Western societies;
- with lower levels of education; and
- without full time work.

The report also found that those households with weaker capacities to protect against loss (i.e., they have limited financial reserves) were less likely to take out insurance to inoculate themselves against future loss.

Reducing the non-insurance rate in Australia to help increase community resilience

The approach taken by the Insurance Council to address non-insurance has been to establish a financial inclusion framework. This framework has as its core components integrating three elements:

- improving the understanding of insurance through financial literacy;
- ensuring that regulatory and policy settings support and encourage insurance (such as taxation relief on insurance); and
- ensuring that commercially sustainable supply and product is available to meet the needs of consumers.

[1] Insurance Council of Australia (2007): "The Non Insured: Who, Why and Trends" page 37, www.ica.com.au

Improving financial literacy

The Insurance Council, in conjunction with a non government partner, is committed to the development of insurance "curricula" for integration with financial literacy programs currently undertaken by non-government organisations (NGOs). Research from the Insurance Council has indicated that insurance literacy programs are underdeveloped and that non-government organisations welcome strengthening this aspect of their financial literacy efforts.

The Insurance Council has been rolling out the curricula in a financial literacy framework amongst NGOs in the second half of 2008. The underlying goals of the project are:

- to strengthen the capacities of individuals in marginal communities to understand the basic concepts and principles operating in insurance;
- to see the role that insurance plays in protection of loss; and
- to better value and price insurance.

Improving regulatory settings for insurance

The Non-Insurance Report[1] commissioned by the Insurance Council concluded that:

- state taxes on building and contents insurance in Australia are significant, varying between 18% and 45% on top of the pre tax premiums;
- analysis suggests that these state taxes have impacted the take-up of insurance and in doing so, caused losses to society. The analysis supports the view that demand for contents insurance is more price sensitive than for building insurance; and
- only NSW and Victoria still impose a fire service levy on insurance premiums. The data presented supports the view that this approach to funding the fire services is costly to society. Other jurisdictions have successfully migrated to other more efficient and equitable funding methods. These should be explored by NSW and Victoria. All states should also consider alternatives to stamp duties on insurance.

The Insurance Council commissioned the Australian National University's Dr Richard Tooth to undertake further and more detailed analysis into the elasticity of demand for house and contents insurance[1].

The elasticity study used econometric analysis to more closely examine the factors that affect demand for house and contents insurance. The report sought to determine:

- the effect of a change in government policies toward state taxes on insurance;
- an estimate a price elasticity of demand[2] for house and contents insurance; and
- other factors that may influence the demand for insurance.

Estimated effect of removing premium based taxes on the take-up of contents insurance (source: Tooth, 2007)

Households (000s) without contents insurance					
	Forecast reduction today if				
	From 2003/04 survey	FSL were removed		FSL, stamp duties, and IPT were removed	
Jurisdiction	Estimate	Estimate	Std. Error	Estimate	Std. Error
New South Wales	795	98.6	(26.9)	130.6	(37.9)
Victoria	491	83.2	(22.7)	109.5	(31.7)
Queensland	441			24.3	(6.7)
South Australia	137			13.6	(3.8)
Western Australia	210			16.3	(4.6)
Tasmania	47			2.6	(0.7)
A.C.T. and N.T.	49			3.0	(0.9)
Total	2,170	182	(49)	300	(86)

1 Dr Richard Tooth (2007) "An Analysis of the Demand for House and Contents Insurance in Australia" (A report for the Insurance Council of Australia).

2 Given the nature of insurance provision, the elasticity estimated is that of the combined effect of supply and demand.

Estimated effect of removing premium based taxes on the take-up of building insurance (source: Tooth, 2007)					
Households (000s) without building insurance (owner occupiers not in body corporate)					
	Forecast reduction today if				
	From 2003/04 survey	FSL were removed		FSL, stamp duties, and IPT were removed	
Jurisdiction	Estimate	Estimate	Std. Error	Estimate	Std. Error
New South Wales	70	22.8	(11.6)	26.1	(14.3)
Victoria	51	26.4	(13.1)	30.4	(16.0)
Queensland	34			4.8	(2.2)
South Australia	14			3.2	(1.5)
Western Australia	25			3.5	(1.6)
Tasmania	7			0.8	(0.4)
A.C.T. and N.T.	3			0.4	(0.2)
Total	203	49	(25)	69	(36)

The elasticities for house and contents insurance estimated by Dr Tooth were then used to estimate the additional take up of insurance upon reform of insurance taxes. The predicted additional take up of general insurance following reform of insurance taxes is outlined below. The taxes mentioned are the fire services levy (FSL), stamp duty and insurance protection tax (IPT).

According to the results in the two tables above from Tooth (2007), removing FSL in NSW alone would lead to an additional 100,000 households taking up contents insurance and an additional 22,000 taking up building insurance. Moreover, removing, all NSW insurance premium taxes would see an additional 150,000 households taking out additional home and contents insurance.

In the final distillation of this analysis it is clear that the uptake of personal insurance lines remains significantly price sensitive. The taxation of general insurance is a significant deterrent to uptake and must be considered as part of any wider strategy to increase community resilience to extreme weather events. The Insurance Council is engaged on a wide front on the subject of non-insurance.

Product supply

Continued development and adaptation of insurance products to suit the needs of the community is a critical issue that is remains at the core of the competitive nature of the industry. As part of this development process it will be crucial to develop commercially viable products that not only serve consumers well, but maintain a sustainable industry capable of responding to extreme events.

Conclusion

Improving community resilience through adaptive measures will allow Australian communities to continue leading a safe and prosperous lifestyle in an environment that is subject to more extreme weather related events.

Resilience, however, is a complex matter and it will take considerable time and effort to implement even the issues canvassed in this document.

The community must be prepared well in advance of manifestation of more frequent extreme weather events, particularly where the protection of property is concerned.

Action is required in each of the areas discussed in this article for communities to be confident that their lifestyle and assets will be maintained into the future.

About the author

Karl Sullivan is the Insurance Council of Australia's general manager for policy, risk and disaster planning. He can be contacted at ksullivan@ica.com.au.