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Natural Disasters in Australia: Issues of funding and insurance

Chris Latham, Peter McCourt & Chris Larkin

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The Institute of Actuaries of Australia
Level 7 Challis House 4 Martin Place
Sydney NSW Australia 2000
Telephone: +61 2 9233 3466 Facsimile: +61 2 9233 3446
Email: actuaries@actuaries.asn.au Website: www.actuaries.asn.au

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Abstract

There is a view that the incidence of natural disasters in Australia is increasing, possibly due to the effects of global warming and consequential climate change.

After Cyclone Tracy in 1974 the Federal Government decided in principle to introduce a national disaster insurance scheme. However for a number of reasons it failed to eventuate.

This paper revisits the question of a national scheme, under the following headings:

- History of past disasters - is the incidence really increasing?
- Who should fund?
- The current situation for funding the financial cost of a natural disaster
- Issues of non-insurance and underinsurance
- International schemes
- A scheme for Australia

Consideration of the above raises social and general economic issues as well as actuarial issues of funding and insurance.

Keywords: Natural disasters, natural catastrophes, funding, insurance, national scheme

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Introduction

Natural Disasters

Natural disasters are large scale naturally occurring events such as earthquakes, cyclones, storms, floods and bushfires. These events can cause significant physical damage, interruption of business services and personal injury/loss of life.

By their very nature, natural disasters are infrequent but severe. As a result, the insurability of such events is brought into question. Insurers are often unwilling to provide full coverage (e.g. flood coverage in certain areas), or if such coverage is provided the price of insurance may be unaffordable for many people.

Current home and contents insurance policies offer a variety of coverages, with cyclone, storm, hail, earthquake and bushfire events typically covered. Historically flood has not been covered but this has changed in recent years with some coverage provided; however, there is not yet a consistency of coverage provided across the Australian insurance market.

Post event costs

The economic cost of disasters can be split into two broad groups:

1. **Preventative and risk managements costs:** for example back burning to reduce the risk of bushfire, or building standards to minimise damage in the event of an earthquake, or managing building approvals to avoid building in flood plains.
2. **Post event costs:** This includes amongst other things the cost of reconstruction following a disaster, losses from business interruption, rehabilitation for personal injury, and compensation which may be payable from loss of life.

This paper focuses on the 2nd item above - the **funding of post event costs**. In doing so we are only including costs which we are terming *directly measurable*. Essentially this means losses that could be covered under an insurance policy or government scheme. For example this includes the cost of rebuilding a property or the losses incurred by a business that is directly affected by the disaster. Some costs which are excluded under this definition include flow-on effects to other business that are not directly affected by the disaster (which can be very difficult to measure) or other intangible effects like the disruption to normal daily life for affected people.

In Section 6 we discuss options for a Natural Disaster Scheme for Australia and propose some specific post event costs to be covered under the scheme.

Natural disaster data

Throughout this paper we present data showing the cost and sources of funding for natural disasters. This information has been obtained from a variety of sources. In some cases we show both the **insured cost** of an event, as well as the **total cost**. We are of the opinion that the insured information we present is reasonably reliable, however there is less reliability regarding the total cost information. As discussed in Appendix A of the 2009 Victorian Bushfires Royal Commission final report, there is not yet agreement as to how the total cost of an event should be measured. As such, care needs to be taken when comparing total cost estimates between sources as definitions are likely to vary.

However, sufficient data is available to examine trends in natural disasters over time which we do in the next section. Furthermore, as the focus of this paper is on the funding of natural disasters, we considered that sufficient data was also available to perform reasonable comparisons of sources of funding between events.

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Paper structure

This paper is structured as follows:

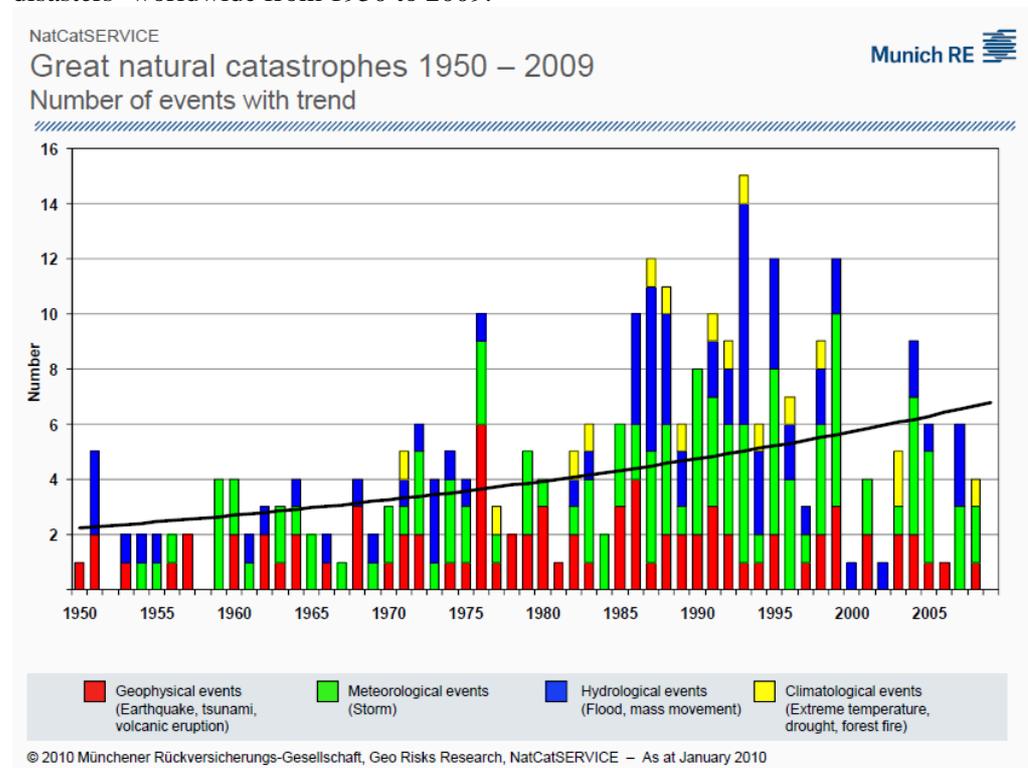
- In **Section 1** we provide an overview of the history of natural disasters and ask the question “is the incidence really increasing?”
- **Section 2** discusses who should fund these costs and the pros and cons of different approaches
- **Section 3** explores how the post event costs of natural disasters have been funded by looking at some specific examples drawn from the Australian experience
- **Section 4** covers the issue of underinsurance and non-insurance which are key issues in the funding of these events
- In **Section 5** we look at government schemes around the world which provide cover in the event of natural disasters
- **Section 6** discusses previous attempts in Australia to implement such a scheme and explores options for a current day scheme for Australia
- **Section 7** outlines some of the work required to develop further the ideas in this paper.

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Section 1: History of past natural disasters – is the incidence really increasing?

1.1 Global trends in disasters

There is a view that the incidence of natural disasters in Australia and around the World is increasing. The following chart (Munich Re 2010a) shows the number of Great natural disasters¹ worldwide from 1950 to 2009.

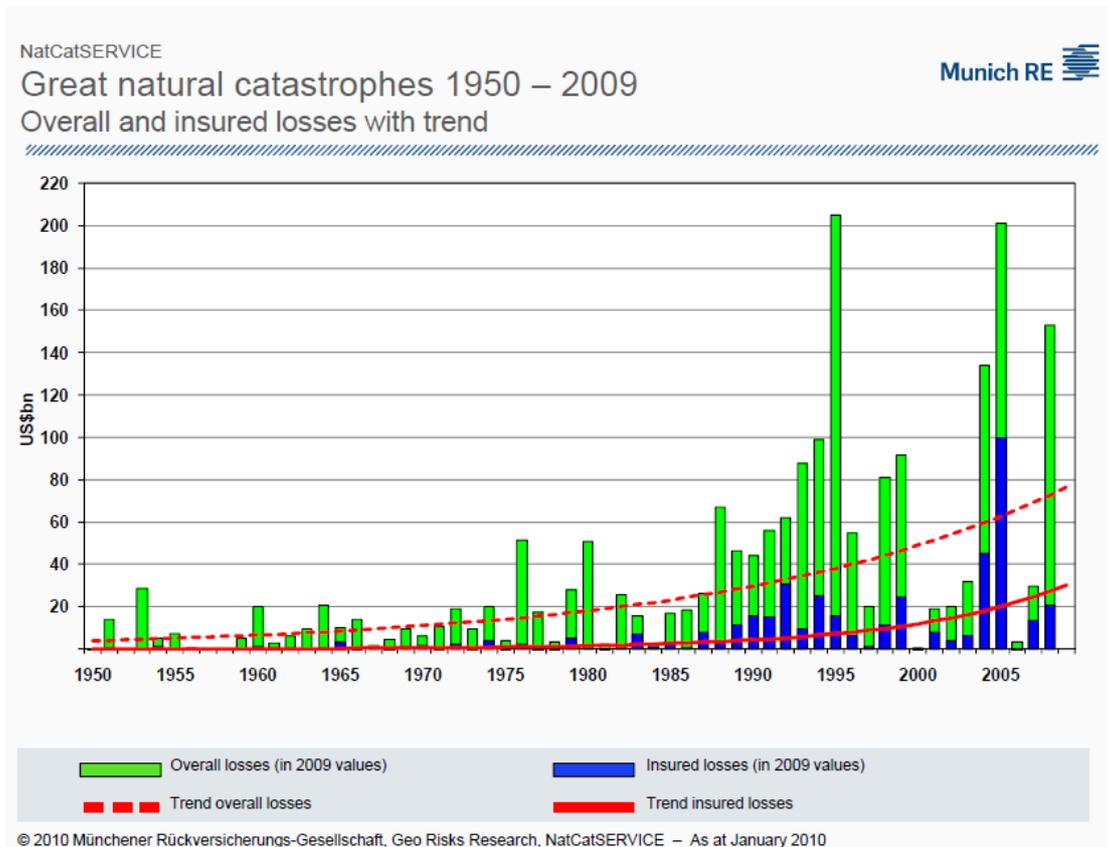


Over the last 60 years there has been increasing trend in the number of Great natural disasters, most notably since the 1980s. The trend over the same period in the cost of losses (in 2009 values) from Great natural disasters also shows an increasing trend (Munich Re 2010b)

¹ Munich Re defines Great natural catastrophes as those where the affected regions ability to help itself is distinctly overtaxed. i.e.

- Interregional or international assistance necessary
- Thousands are killed
- Hundreds of thousands are made homeless
- Substantial economic loss
- Considerable insured losses

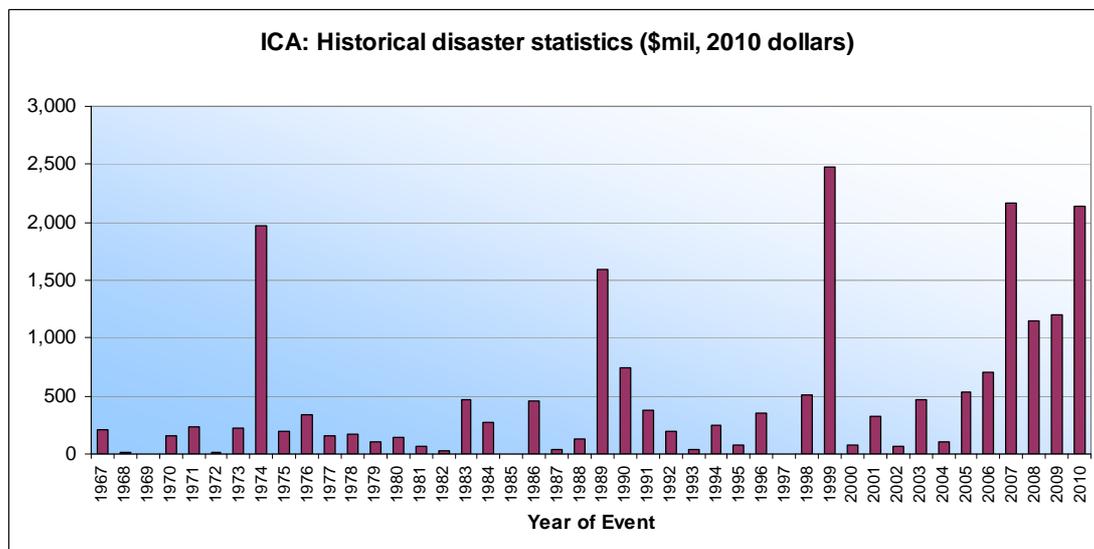
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The increasing trend in cost of overall losses is much stronger than for the number of events. It can also be seen that insured losses represent a relatively small percentage of overall losses which is likely related to many disasters occurring in regions without a developed insurance market.

1.2 Trends in Australia – insured events

Turning to experience closer to home, the following chart shows the cost of insured losses from natural disasters in Australia since 1967.



Source: Insurance Council of Australia - Historical disaster statistics

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Again we see a similar story, with an upward trend observed since 1967, as well as significant costs from events in the last 4 years.

Since 1967 the 5 largest insured events in 2010 dollars are:

- 1999: Sydney Hailstorm (\$2.3b)
- 2007: Newcastle and Hunter Valley severe storms (\$1.6b)
- 1989: Newcastle earthquake (\$1.5b)
- 1974: Cyclone Tracy – Darwin (\$1.3b)
- 2009: Black Saturday Bushfires (\$1.1b)

Apart from the last 4 years, the experience has typically followed a pattern whereby a number of years with the insured cost below \$500m is punctuated with occasional high cost years dominated by a single event.

1.3 Why these increases?

As we have seen, experience from both Australia and around the world shows an upward trend over time in both the number and cost of natural disasters.

Some of the reasons for these increasing trends over time include (Munich Re 2009):

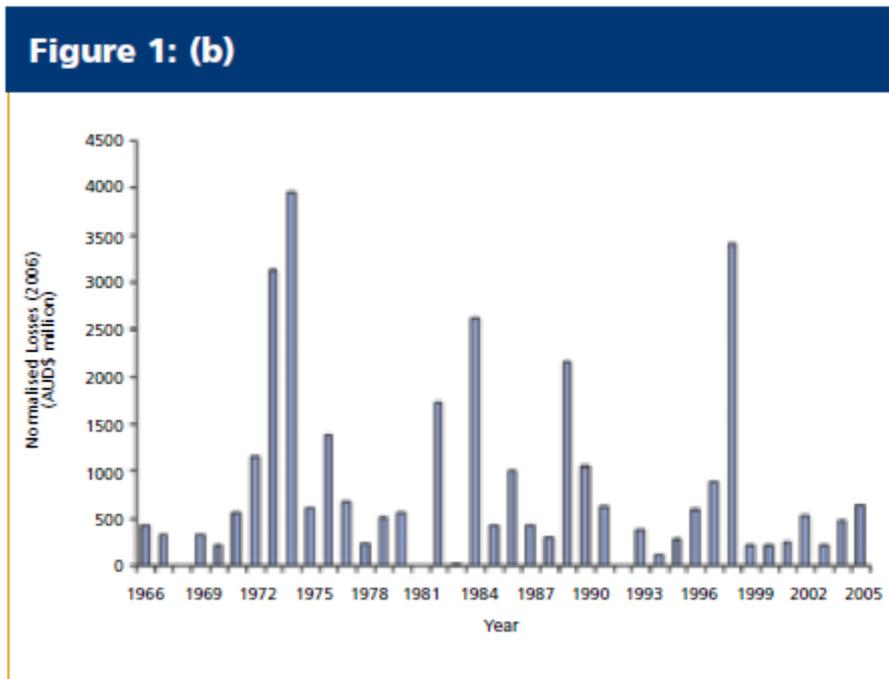
- socio-economic developments, such as increasing concentrations of values (i.e. more people living closer together in cities)
- rising population
- settlement and industrialisation of exposed areas (e.g. increased settlement of coastal areas)
- Climate change and the increase in major weather-related natural disasters.

It is arguable that climate change has had only a limited impact on the losses to date; however this may become a more significant driver of both numbers and costs of disasters in the future.

Pielke et al. (2007) suggest that societal factors have been the major driver of historical long-term increase in disaster losses. The main societal factors driving this increase include population growth (both number and location) and GDP growth. They go on to suggest that future disaster losses will increase as a result of societal factors and economic development, independent of climate change.

Crompton and McAneney (2008) conducted a similar study applied to Australian Insured losses. They adjusted for changes in population, wealth and inflation since the time of the original event. They used proxy variables as surrogates for these factors, and also made allowances for changes in building regulations over time (e.g. more wind-resistant construction in tropical cyclone-prone areas). Their adjusted insured cost of natural disasters in Australia is shown below:

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After these adjustments there is no longer an upward trend in the insured costs of natural disasters.

Consistent with Pielke et al. (2007), Crompton and McAneney (2008) also suggest that societal factors are the primary reasons for the increasing cost of insured losses from natural disasters in Australia. They also note that “*Contrary to popular belief, there is no discernable evidence that human induced climate change is significantly impacting Australian insured losses, yet*”.

1.4 Outlook for the future

In the short to medium term it is likely that we will see more people living in cities, increasing population and continued settlement and industrialisation of exposed areas. These and other societal factors will lead to further increases in the cost of natural disasters in Australia. Climate change also presents a further risk factor for the cost of future events.

With the cost of disasters likely to continue to rise, the question of how to fund these events will become more important over time. Next we look at options for funding and ask the question, *who should fund the costs?*

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Section 2: Who should fund?

The historic trend of increasing financial costs from natural disasters seen in Section 1, along with the expectation that this trend will continue into the future, raises the question of what is the right mix of funding sources to meet these costs. There is a spectrum of possible funding situations.

At one end of the spectrum is the view that everyone should look after themselves. People have a choice to purchase insurance to protect themselves against natural disasters, and those choosing not to insure should bear the costs of this decision.

At the other end of the spectrum is a community view that it is the government's responsibility to regulate the market and fund these costs to ensure everyone is protected.

It is beneficial to look at some of the key features at either end of the spectrum, and then to consider where we currently sit and some of the issues with the current arrangements.

2.1 "Everyone looks after themselves" Approach

Under this approach, the government would play no role in funding the financial impacts of a natural disaster. Insurance would be the main source of funding for most people. Some of the key features of such a system would be:

- Cover would be provided to those who choose to purchase insurance
- Market forces would determine the price of insurance coverage, with the risk/reward trade-off for both insureds and insurers ensuring an efficient allocation of resources (in theory at least)
- This situation would be "fair" in the sense that all participants would get what they have paid for

While there are attractive aspects of a funding arrangement with no intervention from the government, several issues become apparent upon closer examination.

- Affordability – if prices vary according to the relative risk of a given location, some high risk areas may require substantial premiums and hence may be unaffordable to potential insureds who live in these areas.
- Market failure – some risks, locations and/or events may be deemed uninsurable and insurers may be unwilling to offer cover at any price. This may result in some potential insureds who wish to purchase insurance but are unable to.
- Underinsurance – any funding arrangement which relies on insurance necessarily requires an estimate of the amount of coverage to be made. It is difficult to do this accurately, and event demand surge in costs (i.e. increases in rebuilding costs in the period subsequent to an event) can often be significant, resulting in potential underinsurance.

2.2 Government Funded Approach

There are potentially many different options for a government funded system, but at a high level all government funded systems would have the following features:

- Ability to guarantee coverage – a government funded system could provide coverage for all natural perils. Coverage could also be made compulsory for all householders to ensure complete coverage.

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- Affordability – a government funded system could use cross-subsidies across different risk categories to ensure coverage is affordable to all
- Ability to remove underinsurance – a government funded system could use a principle of restoring disaster affected persons to a pre-disaster state to remove underinsurance, rather than limiting funding to persons based on sum insured amounts.

While government involvement can be used to address several of the issues seen in the “Everyone looks after themselves” system, a 100% government funded system has several issues as well:

- Disincentives to reduce risk – if a government funded system tries to make coverage affordable to all via some level of cross-subsidies, this reduces the price incentive for some risk reduction
- Efficiency arguments – the private sector might be considered to be more “efficient” compared to the public sector in providing this sort of coverage
- Credit rating – there is a potential risk to the Government’s credit rating if it takes on too much risk
- Responsibilities of the government – some people may be of the view that this is not the responsibility of the government and may view it as the government trying to have influence in areas in which they don’t belong

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Section 3: The current situation for funding the financial cost of a natural disaster

Unlike some other countries Australia does not have a formal natural disaster insurance scheme (Section 5 discusses some international natural disaster insurance schemes). In Australia insurance plays a key role in providing coverage for post event costs from a natural disaster. As such, in theory at least, Australia operates under the *everyone looks after themselves* model discussed above. However, in practice governments do play an important role in both the management and funding of post event costs. Also, in some cases, funding is assisted by charitable donations from the public.

3.1 Government Funding and roles of Government

In Australia the states and territories have largely assumed responsibility for managing natural disasters. The states are supported by the Federal Government through the Natural Disaster Relief and Recovery Arrangements (NDRRA). The assistance under the NDRRA is partial reimbursement of costs to the states once the state's expenditure exceeds a certain threshold. These arrangements only apply to certain types of events. (e.g. drought is not included), and only for certain types of assistance.

In addition to the NDRRA, the Federal Government also provides an *Australian Government Disaster Recovery Payment* in some cases. This payment is administered by Centrelink, and provides short-term financial assistance to people adversely affected by a major or widespread disaster. The payment is currently \$1,000 per adult and \$400 per child.

3.2 Sources of funding in Australia

In the following Sections we investigate the funding of post event costs for some recent natural disasters in Australia. In doing so we've attempted to identify sources of funding under the following categories where possible:

1. Insurance
2. Government (State and Federal combined)
3. Charitable donations (public and private)
4. Uninsured (i.e. not covered by any of the 3 previous funding sources)
5. Any other identifiable source.

Complete data documenting all sources of funding of post event costs from natural disasters in Australia is not available. The sources of funding shown in the following Sections have been obtained from a variety of sources. It remains likely that for these events we may be missing other sources of funding due to limitations in the available information. Nonetheless, we believe that in each case we have been able to identify the majority of funding sources for each event.

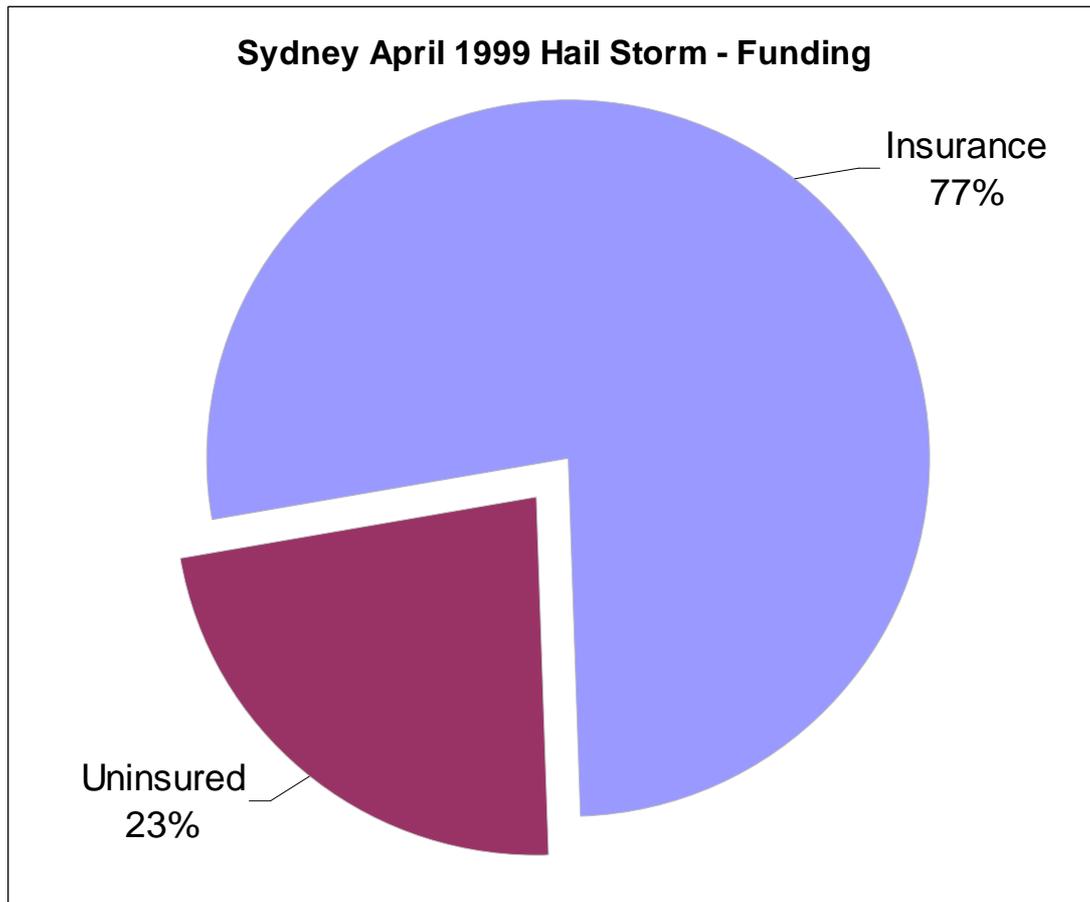
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Example 1: Sydney Hailstorm 14 April 1999

The hailstorm on 14 April 1999 in and around the eastern suburbs of Sydney is, in original dollar terms, the largest single event in terms of insurance cost in Australian history.

The insured cost was \$1.7b (in original dollars) of which around 60% of this related to property damage, 29% motor vehicles, and the remainder other losses such as business interruption². One estimate³ places the total cost of the event at \$2.2b (in original dollars) implying losses of \$0.5m which were not insured. It does not appear that any government funding was provided for this event, nor any charitable donations.

The funding breakdown shown graphically is:



² From RMS (2009)

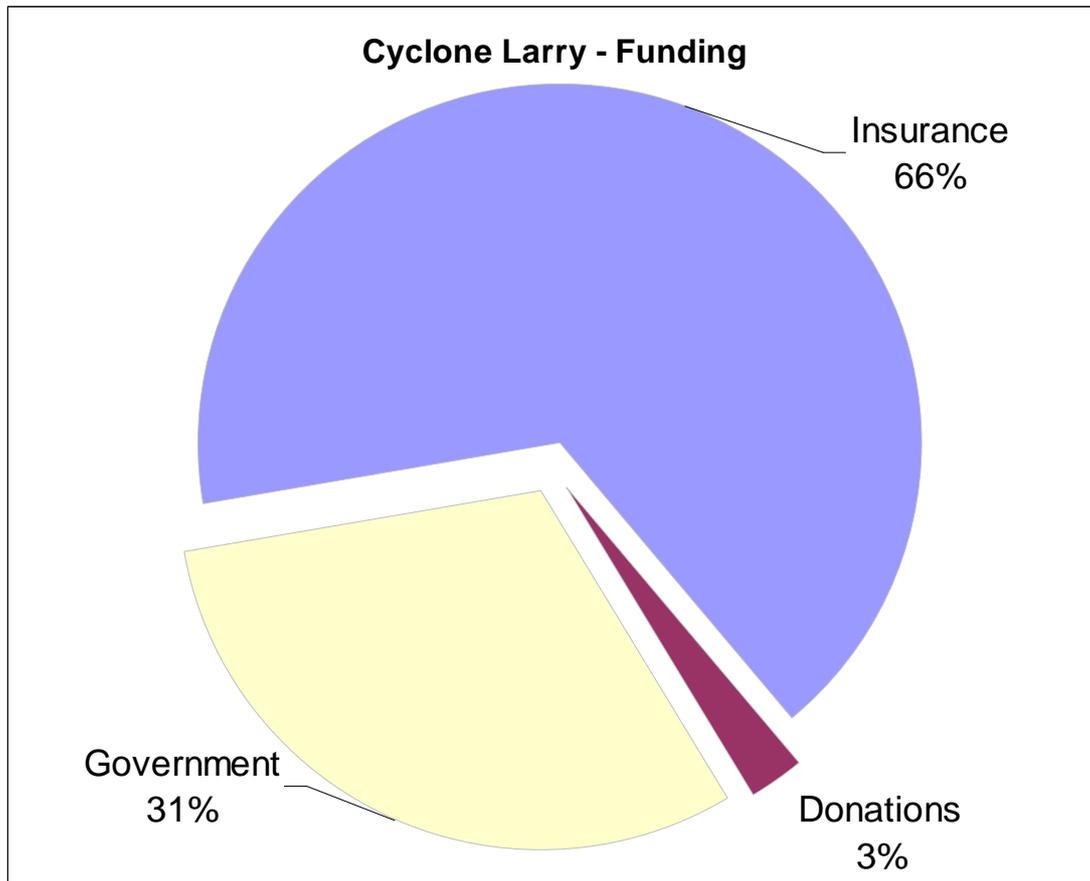
³ Also RMS (2009)

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Example 2: Cyclone Larry

Cyclone Larry crossed the tropical north Queensland coast near Innisfail during the morning of the 20th March 2006. It caused widespread major damage to homes and other buildings as well as extensive damage to local crops and industry, and one fatality.

The sources of funding are shown below.



There are a larger number of sources of funding for Cyclone Larry compared to the Sydney 1999 hailstorm, with Government assistance and charitable donations a source of funding for this event.

The insurance losses for Cyclone Larry totalled \$540m (original dollars) with the majority being property losses.

Government assistance was around \$250m and included various forms of relief such as short term relief (e.g. food, accommodation) and assistance to help businesses rebuild. Very little of the Government assistance related to property losses.

Charitable donations from the public totalled around \$20m, with the majority of this providing short term relief to affected individuals.

We were unable to obtain an estimate of the uninsured losses for this event however newspaper reports from the time of the event suggest that there were a number of individuals who incurred property losses but did not have insurance.

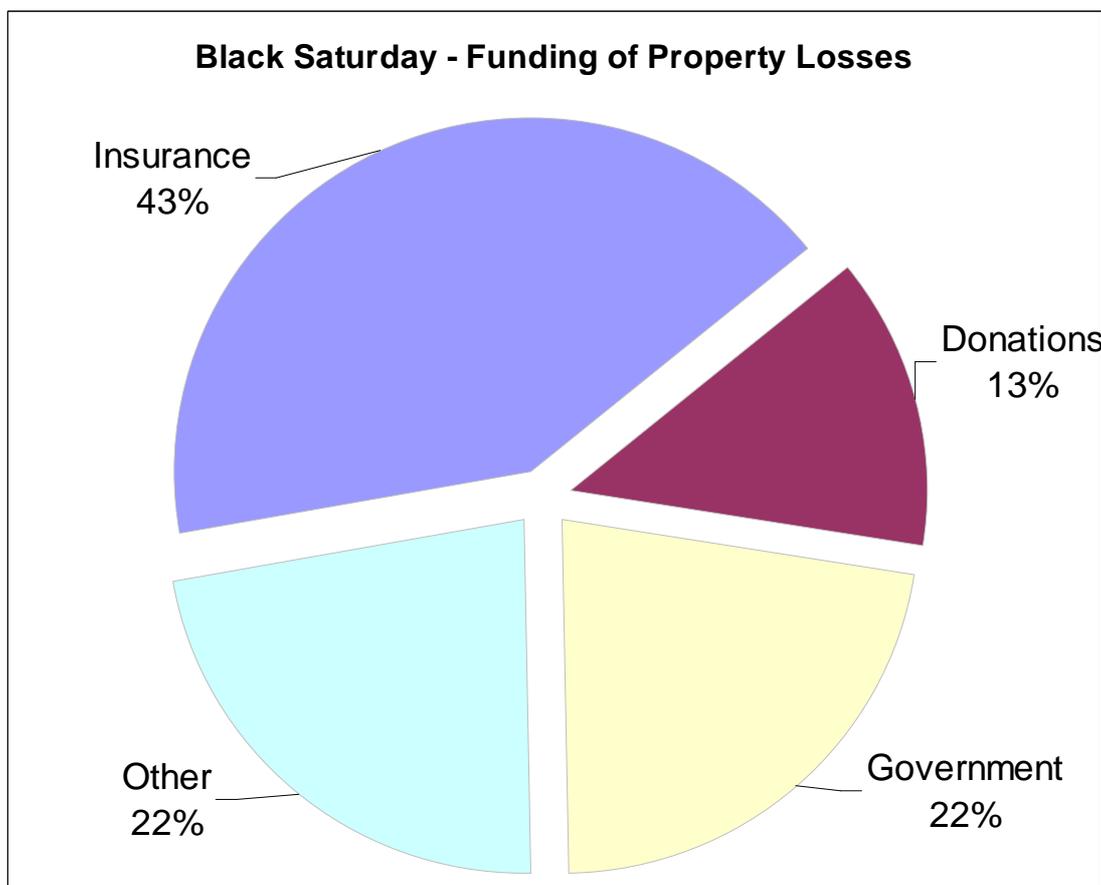
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Example 3: Black Saturday

The 'Black Saturday fires', on 7 February 2009 are considered by many to be the worst natural disaster in Australian history. Significant loss and damage resulted in many regions of Victoria. One hundred and seventy-three people died in the fires and there were substantial property losses.

In their final report, the 2009 Victorian Bushfire Royal Commission (2010) estimated property losses from the fires totalled some \$3 billion. However, they noted that this estimate was likely to be understated as there were some known exclusions from their estimate such as stock losses, and fence rebuilding costs.

The funding of these approximate losses is shown below. We note that for this event we are focussing only on property losses:



We can see that insurance is a much smaller source of funding for this event compared to previous two events. Nonetheless insurance losses were significant at over one billion dollars.

Charitable donations were a significant component of the funding, totalling around \$0.4b. This level of charitable donations was unprecedented in Australian history. For comparison, while insurance losses were just over twice that of Cyclone Larry; donations for Black Saturday were almost 20 times those of Cyclone Larry.

Government assistance was again significant at around \$0.7b. This was shared between the federal and the state governments.

Other is largely an estimate of timber losses (including plantation forests) which was included in the damage estimates made by the Royal Commission.

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The Royal Commission did not estimate losses not covered by insurance, however they did comment that *“about 13 per cent of destroyed residential properties might have been without insurance cover. In addition, there is ample evidence of under-insurance, when that is defined as a situation in which the sum insured is below the rebuilding cost.”*

3.3 Summary of current situation for funding the financial cost of disasters

These three examples highlight the significant variation in sources of funding that can occur between events in Australia. Essentially we have a combination of private insurance supplemented by unpredictable Government funds and public donations. We discuss the implications of this approach to funding further in Section 6.

Section 4: Issues of non-insurance and underinsurance

It is the authors' opinion that the current ad-hoc approach has several notable flaws. As the cost of natural disasters increases in future years the funding situation will become unworkable if it is not changed. The remainder of this section of the paper deals with two issues that play a key role in the funding of natural disasters, non-insurance and underinsurance.

4.1 Non-insurance

Non-insurance is a situation where a person either does not have an insurance policy, or an insurance policy is held but an event occurs which is excluded from coverage. According to an Insurance Council of Australia report in May 2007 (ICA 2007), 4.1% of households in Australia are not insured for building insurance. This amount varies by demographic segments, with higher rates for lower income earners.

The Victorian Bushfire Royal Commission found that 13% of properties destroyed by the Black Saturday bushfires may not have had insurance.

It is likely that non-insurance rates for some natural disasters would also be higher than this level as a result of policy exclusions, particularly in regards to flood cover. International evidence supports this, with rates of non-insurance for the Northridge earthquake (California, USA) and the Kobe earthquake (Japan) estimated to be 83% and 97% respectively, presumably such high rates being a result of policy exclusions.

There are a variety of reasons why non-insurance occurs:

- Coverage for certain types of natural perils can be excluded from property insurance policies (for instance riverine flood cover is excluded by many insurers under property insurance). Such exclusions can be for all policies offered by an insurer, or restricted to certain geographic areas which are prone to the peril.
- Insurance may not be affordable to all people, especially in areas that the insurer has determined are high risk.
- People may choose not to purchase insurance. While some people may make a rational decision that the cost of insurance is not worth the benefit it brings in the event of a disaster (thereby choosing to self insure in effect), it is more likely that the decision for many is influenced by the "hierarchy of denial" (Middleton, 2001). This thinking goes as follows:
 - *"It's not going to happen"* – natural disasters are infrequent events, and people tend to under-estimate the probability that such an event will occur
 - *"It's not going to happen to me"* – people assume that if an event does occur, they will not be the ones affected by it, it will occur somewhere else
 - *"If it does happen to me, it won't be too bad"* – people then assume that if they are unlucky enough to experience one of these events, it won't be too bad, thus downplaying the potential cost impacts.
 - *"If it does happen, it affects me, and it's bad, there's nothing I can do about it anyway"* – people finally assume that if something does happen and it affects them badly, there is nothing they can do to prevent it and the financial cost will be less of a concern than personal safety.

As a result of this hierarchy of thinking, people come to the conclusion that they do not need insurance.

- Compounding the "hierarchy of denial" is the effect of "charity hazard" (Schwarze & Wagner, 2007), whereby people choose not to purchase insurance on the basis that the government will most likely step in and provide financial assistance in the event of a serious natural disaster. This coverage becomes a "free" form of insurance for uninsured people. As insurance relies on pooling of risks to generate a benefit, a

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small pool of insureds reduces the benefit from insurance, driving up the cost per policy and thus making insurance even less attractive. This can lead to a spiralling increase in insurance costs and inevitably market failure.

4.2 Underinsurance

Underinsurance occurs when the sum insured is below the rebuilding/replacement cost of the property. A report by the Australian Securities & Investments Commission (ASIC) conducted in 2005 in the wake of the 2003 Canberra bushfires estimated that between 27% and 81% of households were underinsured by 10% or more against rebuilding costs. Like non-insurance, there are a variety of reasons why underinsurance can occur:

- The majority of insurance policies currently place the onus of selecting an appropriate sum insured on the policyholder. This is an intrinsically difficult task, requiring technical knowledge which most people do not have. On-line estimators provided by insurers can be more of a hindrance than a help, with sums insured varying by up to 170% for the same property risk, depending on the estimator used. Some overseas insurers have removed this issue by offering policies which cover the replacement/rebuilding costs, rather than providing a fixed sum insured. At the time of writing we are aware of one Australian insurer who offers home insurance policies on this basis.
- Policyholders often do not increase the sum insured on their policy over time. Increases in building costs and home improvements/renovations are not captured in the sum insured and as a result this leaves the property underinsured, often significantly so.
- Underinsurance may also result from increasing insurance prices, where policyholders have a lower level of insurance coverage to reduce/maintain their premium (either by conscious choice or for affordability), effectively underinsuring the risk.
- Post event demand surge can also result in significant increases in rebuilding costs in the period subsequent to an event, as the demand for services outweighs supply. This may mean that an appropriately selected sum insured to replace a property on a standalone basis may not be sufficient at a time when many homes in a given area are being rebuilt.
- Comparisons between different property insurance policies can often be difficult to make. The subtle differences in coverage can result in substantial price differences, policyholders may think they are getting a good deal on their insurance, when in reality they are effectively underinsuring their property.

There have been many investigations into non-insurance and underinsurance in the wake of natural disasters in Australia. The mere fact that this occurs suggests that many people are affected by varying levels of non-insurance and underinsurance, particularly so when it comes to protection from natural disasters.

Section 3 also noted donations as a source of funding for natural disaster costs. The donations funding source is particularly vulnerable to what we have termed “charity fatigue”, whereby increasing calls on donations from the public may result in people being less inclined to donate, or donating smaller amounts. The level of donations provided by society also appears to be heavily influenced by the “emotional” impact of the event rather than purely financial factors, as evidenced by the Black Saturday bushfires.

All of the above issues result in the government stepping in and providing support for the cost not funded from insurance or donations. This support is currently funded from the general revenue of the state and federal governments, and as a result the cost is passed back to all Australians in an unfair manner. A funding arrangement which addresses the above issues

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will result in a fair and equitable system of funding the financial costs associated with natural disasters (or at least fairer and more equitable).

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Section 5: International schemes

Insurance schemes covering losses from disasters are not uncommon in other parts of the world, although the details can vary somewhat. In the following brief summary we have focussed on those countries with which Australia is likely to compare itself, namely, developed countries with a high standard of living.

5.1 New Zealand

The New Zealand Earthquake Commission was established in 1945. Despite its name the scheme managed by the Commission covers claims in addition to those caused by earthquakes. It covers damage caused by other seismic-related events such as volcanic eruption, hydrothermal activity, landslip and tsunami. For residential properties it also covers storm, flood and fire related to any of these events.

The scheme is not compulsory. Only those householders who insure their building and contents with private insurers are covered for claims under the scheme. The private insurers include the Commission's premium in their own premium, and subsequently forward it to the Commission.

In the event, however, some 90% of New Zealand households are covered.

The Commission's premium was set at 5 cents per NZ\$100 of cover at the outset, and this has remained unchanged. It generates a premium of around NZ\$90m per annum. There is no risk-rating.

There are limits to cover, of NZ\$100,000 for building and NZ\$20,000 for contents. In total, some 95% of the losses are paid as claims.

The Commission purchases external reinsurance in the market, which currently absorbs around 40% of the premium collected.

The scheme is subject to a government guarantee.

5.2 United States

The National Flood Insurance Program (NFIP) was introduced in 1968, essentially because private insurers did not offer such cover in their standard policies.

The program is not compulsory. Communities can elect to participate in the program, and if they do so they must enforce various requirements to reduce risk. Participation varies significantly across the country.

Premiums total around US\$2 billion per annum from some 5 million policyholders, the majority of whom are in Texas and Florida. They are risk-rated by ten different zones.

5.3 Japan

The Japan Earthquake Reinsurance Company was established in 1966. It accepts reinsurance from private insurers who sell earthquake insurance as an optional rider to a normal fire policy. Some 37% of fire insurance policyholders take up the earthquake option.

Premiums total US\$1.5 billion per annum in respect of 9 million policies.

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5.4 Spain

Spain has a compulsory state monopoly covering floods, storms, earthquakes and terrorist attacks. Premiums are the same for all risks.

The scheme is in fact in conflict with an EU Non-Life Directive which requires that all insurance be open to international competition. They have managed this by not referring to the term “insurance” and calling the premiums a “surcharge”.

5.5 France

In the 1980s France introduced a mixed system whereby private insurers must offer disaster insurance at a flat-rate premium fixed by the government, but with the option to reinsure the risk back to the government.

The arrangements have had their problems. The large nationwide insurers have been able to attract the better (and more profitable) risks and have chosen not reinsure back to the government. The smaller local insurers have been left with the poorer risks which they have of course reinsured to the government. The consequence of this is that the government reinsurer has made large losses and in 1999 this resulted in the need for an injection of funds by the government. Cover was also reduced.

5.6 Switzerland

In 19 of the 26 cantons cover for fire and storm is compulsory through a national monopoly, while in the remaining 7 cantons private insurers offer voluntary cover.

5.7 Germany

Before the EU Non-life Directive referred to above many of the states had compulsory monopoly schemes covering fire and storm. Since the directive there has been a transition to private insurance with consequential large increases in premium rates.

5.8 United Kingdom

In the UK insurance for flood risks is provided by private insurers. The cover is currently provided under a “Statement of Principles” issued by the Association of British Insurers. Under this statement, the insurance industry provides flood insurance to most properties on the condition that the UK government takes actions to mitigate flood risks.

5.9 Discussion

As can be seen, many countries have schemes covering natural disasters and which involve government participation in one form or another. Some schemes are compulsory, others are not.

As well as schemes in developed countries there are several schemes designed specifically for developing countries. Here the level of private insurance is usually much lower and the responsibility of the government correspondingly greater. These schemes are often developed in co-operation with the World Bank or other international bodies.

One of the more interesting of these is the Caribbean Catastrophe Risk Insurance Facility (CCRIF).

The CCRIF was prompted by Hurricane Ivan in 2004, but did not commence until 2007. It covers 16 nations, and is designed specifically to offer immediate short-term liquidity support

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to the government. The amounts paid are determined by so-called *parametric insurance*. The severity of the event (e.g. category of hurricane) will determine the amount, rather than the actual losses suffered. This enables amounts to be paid quickly for maximum benefit.

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Section 6: A scheme for Australia

We now turn to the question of a possible natural disaster insurance scheme for Australia, discussed under three headings, namely:

- Does Australia need a scheme?
- The discussion post Cyclone Tracy
- A scheme for today

6.1 Does Australia need a scheme?

The arrangements currently existing in Australia were described earlier in Section 3. Basically we have a combination of private insurance supplemented by unpredictable Government funds and public donations.

While these arrangements may serve a significant part of the population reasonably well, we see the following problems:

- i. the levels of underinsurance, discussed earlier
- ii. the fact that some people do not insure at all
- iii. the uncertainty of funding from governments and donations

The outcome of the current arrangements is that many people affected by a natural disaster are subject to considerable uncertainty as to the level of funds available to help restore their losses. This uncertainty exacerbates the degree of stress and grief already caused by the disaster.

The levels of support from governments and donations will vary from one disaster to another, and within a particular disaster there will be anomalous treatment of some families relative to others. This is inevitable where there is no formal description of who is entitled to how much. Some families can end up better off financially than before the disaster, while others fare much worse.

It has been argued⁴ that governments can in fact prefer the situation as it exists in Australia and elsewhere. The levels of non-insurance and underinsurance provide political legitimacy for the government to step in with discretionary aid. This is politically attractive in that it creates goodwill amongst the electorate for the incumbent government.

While it can be politically attractive, in our view it is not a responsible policy for a government to adopt. It is preferable for the government to formally recognise the responsibility it has in times of crisis.

Even for those householders who do insure there is sometimes uncertainty as to whether their claim will be accepted. There have been occasions in the past whereby insurers have paid claims to policyholders to which they would not be entitled under the policy wording. Insurers have decided to pay such claims so as to avoid adverse public reaction and/or as a gesture of goodwill. Whatever the reason, such behaviour adds to the overall uncertainty.

If entitlements are formally described then it becomes plausible to ask all householders to assist in funding their cost.

Loss amounts which currently derive from underinsurance and non-insurance can be funded in addition to the normal private insurance premium. This will reduce the need for some of

⁴ Schwarze & Gert 2007

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the government expenditure currently paid from general revenue (although it will still be necessary to fund short-term needs such as food and clothing).

In conclusion, therefore, the authors are of the view that Australia **does** need a scheme to cover natural disasters, because it will:

- acknowledge the reality of what occurs in practice
- remove the uncertainty for householders
- enable better funding of the costs

With an expected increase in the cost of future natural disasters in Australia the need for a formal scheme becomes more compelling. The ad hoc nature of the current arrangements will not suffice.

6.2 The discussion post Cyclone Tracy

Cyclone Tracy hit Darwin at Christmas in 1974. Insured losses were around \$1.3 billion in today's values. The financial position of the insurance industry was significantly damaged and many companies reconsidered their capacity to provide certain cover. In fact many insurers withdrew from high risk areas, making it more difficult for those continuing to provide cover.

As a consequence, in March 1976 the Federal Government announced an in-principle decision to introduce a national disaster insurance scheme. A working party report was released in December 1976.

The proposed scheme would be initially restricted to earthquakes, floods, tropical cyclones and related hazards. Notably, bushfires were not to be included. The scheme would extend to all private property and contents (with some exclusions) and would extend to small businesses. It would **not** cover commercial property.

Government property would not generally be covered. Motor vehicles, caravans, ships and boats would be excluded.

The report gave a comprehensive outline of a potential scheme, and the reasons for their decisions. We recommend it to anyone interested in the subject.

On the question of the need for a scheme the report of the working party identified the following flaws with the then current arrangements:

"...a reliance on government for assistance does not promote the concept of self-help but involves Government in substantial expenditure commitments: the emotional atmosphere in the post disaster situation often leads to public claims of inadequate Government responses"

and

"there are also problems for Governments in determining the extent to which victims should be compensated, the nature of the losses to be covered, the applicability of means tests, and the treatment of people taking out insurances with those who choose to accept the risk"

These comments are in accord with the conclusions made in Section 6.1 above.

The underlying principles of any scheme would be to:

- i. make available to all persons natural disaster cover at reasonable premiums

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- ii. encourage individuals to protect themselves rather than rely on Governments
- iii. seek equity among individuals by having regard to relative risks
- iv. facilitate the implementation of policies directed at mitigating natural risks
- v. minimise the call on government funds by pursuing, to the extent practicable, a self-supporting scheme

These still seem worthy principles.

The basic structure of the scheme proposed was as follows:

- a) A pool of insurers would be established, providing cover up to a pre-determined limit
- b) The cover would be standardised, but premiums would be risk-rated
- c) The Government would offer reinsurance to the pool
- d) Cover would not be compulsory, but would be strongly encouraged. Those who opted-out would acknowledge that they were not covered
- e) Special arrangements would be considered to assist those who, subject to a means test, could not afford to take out cover

In the circumstances at the time, the insurance industry strongly supported such a scheme. However they preferred a compulsory scheme in order to ensure a wide spread of risks. The working party were obviously anxious about the public reaction to compulsion, but noted that in their report that “*experience may show that compulsion on insureds is a necessary condition for a viable scheme.*”

After the working party’s report was completed in December 1976 further work commenced to agree on the finer details of the arrangements. However the initial strong commitment waned as there were no further major disasters, and the public came to accept higher premiums. The financial health of the insurance industry improved.

So, when John Howard became Federal Treasurer in 1977 he abandoned the proposal.

6.3 A scheme for today

Notwithstanding that the proposals discussed above were formulated almost 35 years ago, we believe that the general principles and structure represent a valid starting point for a scheme for Australia in 2010.

Intended coverage would at least encompass those noted in Section 6.2, but would need to be reviewed and, possibly, extended. For example in the current environment we suspect that bushfires would be included. In addition views may well have changed regarding the exclusion of motor vehicles etc.

We now discuss three of the basic components of a scheme:

A. A Government and private sector co-operative arrangement

From earlier discussion it is clear that private insurance can at best be seen as a partial solution to the problem of disaster insurance. As such some Government involvement is necessary.

Indeed it may well be asked whether the Government should go it alone, without the support of the private sector. Some State governments already have monopoly schemes covering workers’ compensation and transport accident insurance. In most cases these schemes have arisen as a result of a perceived failure of the insurance industry in these classes of business.

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However the Government has no ready pool of expertise in disaster insurance to draw upon, and the private sector cannot be said to have “failed” in any definitive sense. It therefore seems sensible to use the experience of the private sector as far as possible. This will avoid the risks involved in establishing a new Government body and in the gathering of the appropriate skills.

The Government’s intended role as a reinsurer to the scheme is not new. After the 9/11 terrorist attacks the Australian Reinsurance Pool Corporation was established to reinsure terrorism risks in Australia. The Government is the reinsurer.

Similarly, the NSW and Victorian State Governments have provided catastrophe reinsurance to writers of Homeowners Warranty Insurance. This became necessary when international reinsurers refused to provide cover after 9/11.

In summary, there appears to be no reason why we should not aim for a co-operative arrangement between the Government and the private insurance industry.

B. The pool mechanism

The pool is intended to be managed along traditional insurance principles. Premiums would be collected, claims would be paid, reserves would be established. It would probably be an APRA regulated entity reporting under accounting standard AASB 1023.

Premiums would be set by a Premiums Advisory Committee, and would be the same for all participating insurers. There would be some risk-rating. The premiums would be intended to generate a profit for the participating insurers.

Reinsurance would be effected through the Government, who would charge a premium to the pool.

There would of course be a myriad of details to be resolved including, inter alia:

- The extent of profit permissible. There is some history in NSW CTP of insurers being permitted a “reasonable rate of return of capital employed”.
- The amount and cost of reinsurance provided by the Government.
- The source of the initial capital requirement, and how much it might reduce the requirements of the participating insurers for their business written outside the pool.
- Conditions for entry and exit to the pool.

The success of the pool will be dependent in part upon the solidarity existing between the insurers. The idea of sharing profits with competitors may seem somewhat perverse. However a pool arrangement seems much more desirable than the alternative of the Government dealing with a number of individual insurers. A larger pool will be more viable financially and, hence, likely to require lower premiums than otherwise.

A pool arrangement will help to ensure that insurers behave in a manner consistent with the objectives of the scheme. All participants will have a common interest.

C. Compulsory, or not?

The idea of compulsory insurance is already familiar in Australia -Workers compensation, CTP, Homeowners Warranty. Some Medical Indemnity and Public Liability insurance is de facto compulsory.

As inferred earlier the difficulty with voluntary participation is that more of the good risks will not insure, leading to less cross-subsidy and less affordable premiums. However from the

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householders' point of view, why should the good risks be required to subsidise the poor risks?

The issue is problematical, and individuals' views will differ according to personal values and politics. However the fact is that society as a whole is at least to some extent already subsidising the poor risks and those who do not insure. All Government expenditure comes from taxpayers, as do donations.

On balance the authors' preference is that disaster insurance should be made compulsory, perhaps subject to satisfying a means test. Compulsory insurance will at least reduce the degree of cross-subsidisation already implicit in the current arrangements.

To enforce compulsion we suggest that payment of premiums be made coincident with the payment of rates to local councils⁵. This is similar to requiring CTP insurance before registering your car. Councils could collect the premiums and remit them directly to the insurance pool.

There is a potential side-benefit for the involvement of councils. Councils must approve the erection of buildings in their area. However when granting their approval experience suggests that they are not always fully aware of the risks from flood, bushfires etc. Greater involvement in the insurance process may assist in risk mitigation. Obviously some education will be required.

As in other forms of compulsory insurance an uninsured pool will be needed, but this should not be a major problem.

In addition to the above aspects of a scheme there is of course the question of *cost*. In this paper we have not attempted to estimate the cost, but have flagged it for further work. Suffice it to say, however, that a significant proportion of the cost is currently included in insurance premiums. To the extent that costs are transferred to a National Disaster Scheme, there will be a corresponding reduction in insurance premiums.

6.4 Conclusion

We believe that it is time that serious consideration is given to establishing a natural disaster scheme for Australia. We should not wait until a series of events leads to financial hardship for householders, insurers and governments.

A great deal of the groundwork for such a scheme was done after Cyclone Tracy in 1974, and this can be used as an initial model for discussion.

So, let us:

- acknowledge the reality
- remove the uncertainty
- enable better funding

⁵ Under this option, landlords would be paying to insure the contents of their tenants, but could pass this cost onto tenants via increased rent.

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Section 7: Further work

In this paper we have developed the case for a natural disaster scheme and given some idea of what such a scheme might look like. However considerable more work is needed to take the ideas further.

The authors intend to undertake further work to address such questions as:

1. Exactly how is a natural disaster defined for the purposes of a formal insurance scheme?
2. What would the standard cover provide?
3. What might be the average premium for such insurance, if the scheme is compulsory/not compulsory?
4. How might the premium vary between different regions?
5. What would be the capital requirements for the pool differ under different reinsurance arrangements with the Government?
6. What will the Government reinsurer look like?

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