



20 June 2014

Natural Disaster Funding Arrangements  
Productivity Commission  
LB2 Collins Street East  
Melbourne VIC 8003

Email: [disaster.funding@pc.gov.au](mailto:disaster.funding@pc.gov.au)

Dear Sir/Madam

### Addressing the effectiveness of current national natural disaster funding arrangements

This letter is the Actuaries Institute's response to the Productivity Commission's Issues Paper on *Natural Disaster Funding Arrangements* ('discussion paper') released for consultation in May 2014.

#### Summary

##### Major Recommendation

The Actuaries Institute recommends that the Commonwealth Government consider the development of a risk management framework to be applied throughout different jurisdictions (local council, state and federal government). This framework will enable mitigation priorities to be identified so that attention can be focused on the highest priorities.

Generally, there is widespread support for natural disaster resilience and mitigation projects from communities, government and insurance companies. Investment in natural disaster mitigation and resilience infrastructure projects can reduce communities' vulnerability to natural disasters and drive down the cost of unaffordable insurance premiums. Studies in both Australia and overseas show the cost of the right mitigation projects are far less than the cost of rebuilding or repatriation.

The high levels of unaffordable insurance premiums for some parts of the community, in particular areas of flood and cyclone, reflect areas of significant natural disaster risk. Unaffordable premiums could result in reduced levels of insurance resulting in increased reliance on government post-disaster funding.

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Under a cost/benefit analysis it does not make sense to mitigate all risks. A risk management framework would highlight where the expected benefits exceed the mitigation costs, or where it minimises an undesirable catastrophic event that results in loss of life, even if the purely economic cost exceeds the average economic benefit.

Australia is exposed to significant natural perils and disasters, which are predicted to become more frequent and more severe with climate change. The Commonwealth Government has an important ultimate role in natural disaster relief and recovery arrangements and its commitment is warranted and important. From a funding perspective, the present system of government and charitable post-event funding of disaster losses does not always promote equitable outcomes. This means that Government intervention should result from a formal assessment based on standard risk management metrics. Tackling the issue of mitigation today improves the self-reliance of our communities and builds future disaster resilience.

#### Other Recommendations

- ▶ No future developments are allowed in areas of unacceptable risk and building standards are updated to reflect best practice and extended to reflect property damage where appropriate.
- ▶ The Commonwealth Government give preference to policy responses to natural disasters (e.g. under the Natural Disaster Relief and Recovery Arrangements) that encourage and facilitate greater application of risk management at all levels of Government.
- ▶ Full consideration be given to the different funding options including the creation of a temporary reinsurance pool with strict mitigation targets, direct mitigation infrastructure funding by government through taxes/levies or mitigation projects funded through private capital with exclusive rights.
- ▶ All analysis of natural disaster risk management and mitigation strategy takes into account the impact of different climate change scenarios as determined by the latest IPCC findings.

#### Response to Terms of Reference

This submission responds directly to the five matters listed in the Terms of Reference below.



## 1. The effectiveness and sustainability of current arrangements for funding natural disaster mitigation, resilience and recovery initiatives

### Recommendation

The Actuaries Institute recommends the Commonwealth Government consider the development of a risk management framework and a common approach to be applied throughout different jurisdictions (local council, state and federal government). This framework will enable mitigation priorities to be identified so that attention can be focused on the highest priorities.

### 1.1 Current mitigation measures are not effective

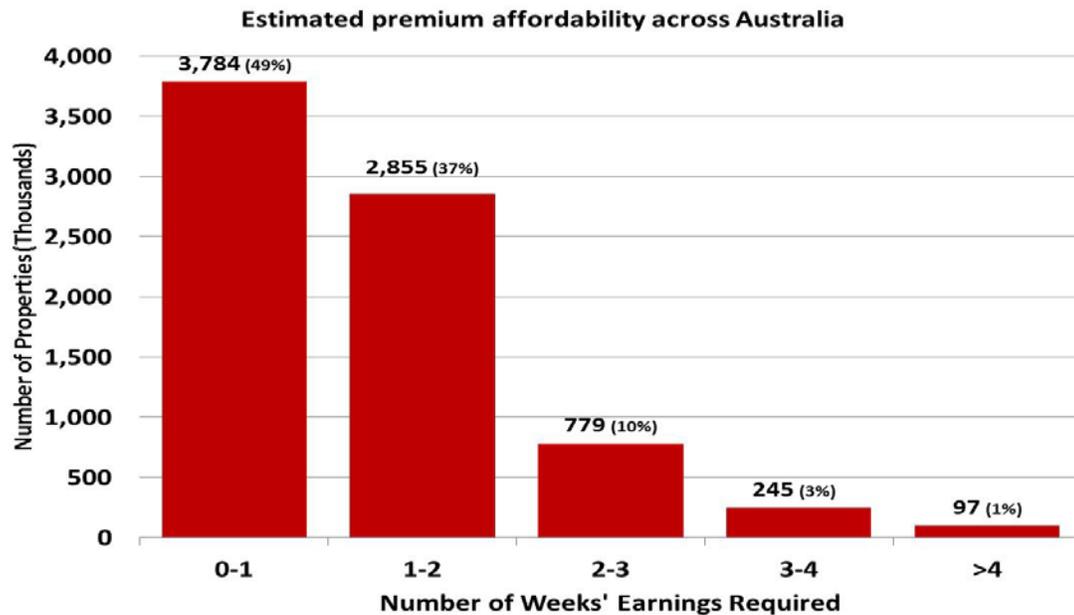
The current arrangements for funding natural disaster mitigation, resilience and recovery initiatives, particularly in the area of flood, are not effective. The lack of appropriate mitigation is resulting in increased levels of vulnerability and exposure to the risk associated with extreme weather events and their disruptive impacts. The problem is illustrated by decreasing levels of insurance affordability for communities exposed to certain natural hazards. This leads to increased levels of non-insurance that consequently leads to reduced self-reliance and increased government post-disaster funding reliance.

There is a lot of focus on personal lines losses but there is also significant damage to public infrastructure assets. Generally, public asset damage results in indirect economic and opportunity costs such as the slowing of the economy, fall in tourism, social impacts (health and education) and loss in public revenue. Studies show that every dollar spent on mitigation saves many more dollars in event losses. The Australian Business Roundtable for Disaster Resilience and Safer Communities estimates the total economic cost of natural disasters in Australia in 2012 exceeds \$6 billion, rising to an average of \$23 billion per year by 2050, even without any consideration of the potential impact of climate change. The roundtable estimated an annual investment of \$250 million a year would lead to budget savings in 2050 of \$12.2bn, reducing natural disaster costs by more than 50%.<sup>i</sup>

### 1.2 Affordability

Where insurance is not available or affordable, it can be difficult for a community to be sustainable without the assistance of external funding such as government bailouts. Where cover is available, insurance premiums act as a good indicator/price signal of risk. As a general rule high insurance premiums reflect a high frequency of an event occurring and/or a high cost if an event occurs.

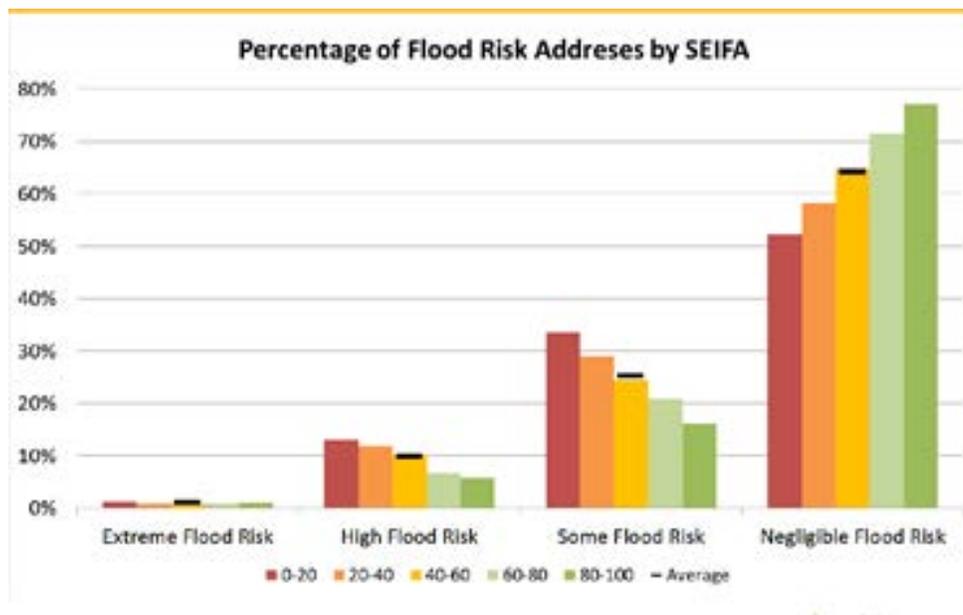
Insurance is becoming unaffordable for some parts of the community, especially those living in areas at high risk of natural perils such as flood and cyclone and to a lesser extent bushfire. The following chart shows that the cost of building insurance premiums for 320,000 households (or 4% of total households in Australia) is estimated to exceed three weeks of average earnings.



Source: Personal Lines Pricing Seminar 2013 – Affordability of Flood Cover Panel Session  
<http://www.finity.com.au/wp/wp-content/uploads/2013/04/02.-Flood-Affordability-Panel-Session.pdf>

Improvement in technology and information has resulted in insurers assessing risk and determining premiums at the individual household level. On average, insurance premiums now are more reflective of the underlying natural disaster risk. In the long-term, this should act as a disincentive for people to reside in these high risk areas due to the high cost. However, in the short term, the people affected are often those least financially able to move away from the high risk areas.

This issue of affordability is compounded by the fact that often the areas with the highest premiums are those with the lowest earnings. Socio-Economic Indexes for Areas (SEIFA) is a product developed by the Australian Bureau of Statistics that ranks areas in Australia according to relative socio-economic advantage and disadvantage (with 0-20 defined as the most disadvantaged). The chart on the following page shows that a higher percentage of people from the low SEIFA live in the high-risk flood addresses.



Source: Personal Lines Pricing Seminar 2013 – Affordability of Flood Cover Panel Session  
<http://www.finity.com.au/wp/wp-content/uploads/2013/04/02.-Flood-Affordability-Panel-Session.pdf>

Flood cover can also be very expensive for businesses and commercial properties so many go without cover. Flat land can be good for big industrial sheds but is often flood prone.

### 1.3 Reduced self-reliance

Higher rates of non-insurance lead to less self-reliance and therefore greater dependence on post disaster funding by government. As at March 2013, it was estimated that 9% of building and contents policies do not have active flood cover<sup>ii</sup>. The ICA confirms that around 7 per cent of policyholders have exposure to flood risks. Therefore, it is reasonable to conclude that the people most at risk of flood, and who need cover most, are also those that are most likely to be uninsured for it. Therefore, although flood cover is now widely available, this has not resolved the issue of a lack of flood cover at an affordable price.

Post-disaster funding often results in stress on uninsured individuals, negative media coverage for insurance companies, councils and governments and unexpected pressure on government budgets. Clearly none of these outcomes are desirable for any of the parties involved.

### 1.4 Increased Government post disaster funding

Although insurance has been a major source of funding for natural disaster events, significant financial burdens have been placed on state, territory and Commonwealth government budgets (through the Natural Disaster Relief and Recovery Arrangements (NDRRA)), in particular for the 2011 Queensland funds. The Federal Government introduced a temporary flood levy on Australians' taxable income to fund the NDRRA to help affected communities and provide additional funding to rebuild essential infrastructure.



Generally, the relative proportion of insured losses to total economic losses is expected to be between 50% and 70% for mature insurance markets globally. This proportion varies by type of event but is most influenced by:

- ▶ whether the event impacts both public sector assets and private sector assets;
- ▶ the level of natural disaster coverage within existing insurance products; and
- ▶ the extent of inadvertent under-insurance and non-insurance.

Table 1 shows for most events in Australia, insurance accounts for 70 - 80% of the total economic costs. However, for Cyclone Larry in 2006 and the Floods in Queensland and NSW in 2011 insurance only covered 36 - 40%, leaving governments to cover most of the remaining 60 - 64% of economic cost.

**Table 1: Most costly weather-related disaster events in Australia 1999 to 2014**

Date	Event	Economic Loss \$ millions	Insured Loss \$ millions	Insured %	Uninsured %
Apr 1999	Sydney Hailstorm	2,120	1,700	80%	20%
<b>Mar 2006</b>	<b>Tropical Cyclone Larry</b>	<b>1,500</b>	<b>540</b>	<b>36%</b>	<b>64%</b>
Jun 2007	Hunter Valley & Newcastle Storm/Floods	2,145	1,480	69%	31%
Feb 2009	Victorian Bushfires "Black Saturday"	1,444	1,070	74%	26%
Mar 2010	Melbourne Hailstorm	1,293	1,044	81%	19%
Mar 2010	Perth Hailstorm	1,351	1,053	78%	22%
<b>Jan 2011</b>	<b>Floods QLD &amp; NSW</b>	<b>6,000</b>	<b>2,388</b>	<b>40%</b>	<b>60%</b>
Feb 2011	Tropical Cyclone Yasi	2,000	1,412	71%	29%
Jan 2013	Floods and storms Qld (following TC Oswald)	1,650	977	59%	41%

Source: Data from Swiss Re sigma reports, Insurance Council of Australia. The insured loss amounts exclude claims paid by non-APRA-regulated insurers or insurers that are not part of the Insurance Council database. All loss amounts in original dollars (unindexed).

## 1.5 Mitigation – short-term costs will lead to long-term gains

Tackling the issue of mitigation today will improve the self-reliance of our communities and build future disaster resilience. Generally, there appears to be widespread support for disaster resilience and mitigation projects from communities, government and insurance companies but increased levels of mitigation are required..

Minimising damage from natural disasters is the only sustainable way to reduce risk and insurance premiums over time. Experience in Australia and internationally shows that mitigation can sustainably reduce risks, and hence insurance premiums, making communities more viable. Suncorp estimates that the construction of a flood levee by the Goondiwindi Council reduced insurance premiums by an average of 33%. Another example that illustrates the benefits of mitigation is the comparison of insurance premiums in Roma of \$3,000 (before a flood levee was considered) and premiums in nearby Charleville, which has a flood levee of around \$1,200.



A flood levee for Roma in 2005 was costed at between \$2 million and \$15 million. The flood levee was not built and floods in 2010, 2011 and 2012 resulted in a total repair cost exceeding \$500 million, demonstrating the clear benefit of flood mitigation efforts. Suncorp's decision not to write new insurance cover in Roma and Emerald following the floods reinforced the message to governments that insurance could not fix the flood problem, and that hard decisions around land use planning and disaster mitigation were required.

The *Building our Nation's Resilience to Natural Disasters* White paper outlined how a program of resilience expenditure of around \$250 million a year<sup>1</sup> to 2050 would ultimately generate budget savings of more than \$12 billion and Australian Government expenditure on disaster response could reduce by more than 50%.

## 1.6 Consistency, coordination and a common risk management framework

Insurance transfers risk but does not reduce it – this only happens through mitigation, building codes and land-use planning laws are effective methods to improve natural disaster resilience. Each year, the Australian Government spends an estimated \$560 million on post-disaster relief and recovery compared with an estimated \$50 million on pre-disaster resilience. The overlapping responsibilities of local councils, state and federal governments, emergency services and catchment authorities complicate disaster resilience progress. There will naturally be tensions between new developments (bringing money to the area) and risk management measures (considered to increase short-term costs); clear guidance is required to ensure appropriate long-term decisions are taken.

Planning and development approvals are often the responsibility of state and local governments, whilst the post-disaster impact of inappropriate development will cause financial impacts at the federal government level. Although there is general support for mitigation, the current approach to mitigation is quite piecemeal, has no clear assigned responsibilities and no clearly articulated long-term plan. Without a proper risk management framework, it is difficult to determine how mitigation activities should be prioritised. Further detail of risk management frameworks can be found in Annexure A.

Investment in natural disaster mitigation and resilience infrastructure projects can reduce communities' vulnerability to natural disasters and drive down the cost of insurance premiums. Developing and implementing risk management frameworks can help risks and cost effective mitigation options to be assessed.



## 2. Risk management measures available to and being taken by asset owners – including the purchase of insurance as well as self-insurance options

### Recommendation

The Actuaries Institute recommends that no future developments are allowed in areas of unacceptable risk and building standards are updated to reflect best practice and extended to reflect property damage where appropriate.

### 2.1 Future developments – land-use planning and building standards

Insurance provides appropriate risk signalling and advice around what risk management may be available as well as an assessment of its impact. Although insurance premiums provide a good risk signal, this risk signal is not always sent to, nor borne by, those in the best position to act e.g. developers and councils. To avoid moral hazard and maintain incentives for risk management and natural disaster mitigation, key stakeholders (homeowners, businesses, councils, governments) need to have a vested interest in outcomes. It is also important that homeowners at the time of purchase have clear information on the hazards that their property is exposed to, and the annual insurance premiums, so that they knowingly take on the risk.

A legacy of poor land planning decisions by individuals and governments has resulted in concentrations of exposure in natural disaster areas. There is often a disconnect between those who set to profit from developments, and those who are subject to the risk of natural disasters. As a result, there is often no incentive to reduce this risk. Limiting exposure to natural disasters can be managed through land-use planning.

Australian building codes safety and resilience requirements emphasize the preservation and protection of life over the protection of the constructed asset. This has resulted in a built environment at high-risk of damage during natural peril events leading to a perpetual drain on the assets within Australia's economy. The '1-in-100 year flood' basis used for planning purposes in Australia faces a number of issues in practice:

1. There is not always accurate information to help appreciate the true nature of risk and what a '1-in-100 year flood' actually is. Individuals may be operating under false confidence and assume that they are unlikely to see such an event happen in their lifetime (and if does, it will only be once). Where as, a '1-in-100 year event' would not be considered a particularly infrequent event for an insurer.
2. '1-in-500' or '1-in-1000' risks that may have devastating impacts are not considered. In London they are moving to a planning level above the '1-in-500 year flood' for land adjoining the Thames estuary.
3. The impact of climate change on the risk is not considered so the expected level of risk may change over a property's lifetime.
4. In practice, local councils have the authority to overturn the '1-in-100' year restriction based on other considerations.
5. Property adaptations for the risk are not always built, for example stilts, additional exits, fireproofing, clearance of trees and bushland.



6. Following an event, damaged properties tend to be rebuilt with little or no additional mitigation works on the property or surrounding areas. An example of this is the recent flooding across QLD (2011/12, 2013), in which many areas were flooded, rebuilt, then flooded again ("those who fail to learn from history are destined to repeat it", Churchill).

Planning regulations need to ensure future developments are appropriate for high-risk areas. These areas can be determined with today's improved knowledge of natural disasters and with an appropriate risk tolerance framework.

Examples of high-risk developments include:

1. Construction in known flood plains (e.g. Hawkesbury Nepean plain) or known storm surge areas.
2. Lack of adaptation for cyclone risk in areas where cyclone activity has previously occurred, and where cyclones will strike again (e.g. South QLD, North NSW).
3. Construction in bushfire prone areas.
4. Land use and building decisions using outdated hazard mapping information or information that does not allow for expected climate change impacts.

Coastal inundation from sea level rise, storm surge and actions of the sea are other key risk areas that needs to be examined. Actions of the sea are usually excluded from personal insurance. Storm surge is not universally covered by personal Insurance (but is covered under the State insurance arrangements) and, therefore, people are left to carry their own risk. This is an example of where the cost of insurance does not provide a true indication of the risk faced by those people living on the coast.

This review is an opportunity to encourage *appropriate* regional development and to ensure the policy is supported by every level of government in Australia. It is important that 'a line in the sand be drawn' for future developments. At the point of sale, all parties should be made aware of the natural hazards that the property is exposed to and the cost of the risk premium for those hazards (e.g. as illustrated by an average insurance premium over the previous three years).

## 2.2 Existing built infrastructure – improving resilience

For existing built infrastructure, there are the options of relocation, large scale community projects (such as levee construction and back burning) or smaller individual mitigation projects (such as raising properties or using flood or fire resistant materials). Risk-based pricing in the home insurance market provides insight into mitigation needs. There should be a focus on areas where natural disaster risk is concentrated to determine whether mitigation options exist to reduce the risk over the long term.

There is no state/territory regulatory regime to ensure that levees are adequately maintained. Through lack of maintenance, some levee systems may have 'low points' that are below the intended design height of the levee, thus reducing the effectiveness of the levee as a whole and consequently the protection offered. Another issue relates to whether the height of the levee built to protect towns, are designed to keep out floods as severe as a '1-in-200' year events that could lead to catastrophic consequences.

Mitigation projects, carried out by individuals, such as raising the height of houses, are not rewarded with reduced insurance premiums in many cases. In most cases companies apply rating models that rely on general parameters (such as location, building type, owner occupied)



and bespoke rating to take account of individual mitigation actions are not incorporated. A simple rating formula keeps expenses lower and this feeds through to the loading for expenses in the premium. For the most part, price is a key determinant in the decision when people buy insurance.

Damage to outbuildings and fences can also contribute to insured losses thereby reducing the potential extent of premium reduction that can be obtained through individual mitigation efforts. Unfortunately, without the benefit of reduced insurance premium there may be limited incentive for people to carry out personal mitigation projects.

Voluntary buybacks were offered:

- ▶ in Victoria following the bushfires in 2009;
- ▶ following the Christchurch Earthquake in 2011; and
- ▶ in Brisbane around the Rocklea area following the 2011 floods, however, the take up was very low.

Land swaps have also been offered although these can be difficult for councils to set up. One of the important lessons learnt from the Canterbury Earthquakes in New Zealand is that rebuilding is a complex exercise and that speed counts. Until infrastructure is fixed nothing else gets fixed. Therefore, although building standards and retrofitting activities can take some time to implement, it is beneficial to ensure that appropriate standards are developed before the unfortunate event of a natural disaster occurs so that a quick response can be determined.

The risk management framework will enable cost benefit analyses of different relocation and retrofitting mitigation options to be conducted so that opportunities for reduced natural disaster risk and reduced insurance premium options can be investigated.

### 3. The interaction between Commonwealth natural disaster funding arrangements and relevant Commonwealth/state financial arrangements

#### Recommendation

The Actuaries Institute recommend that the Commonwealth Government give preference to policy responses to natural disaster (e.g. under the Natural Disaster Relief and Recovery Arrangements) that encourage and facilitate greater application of risk management at all levels of Government.

#### 3.1 Improved understanding of risk

The Natural Disaster Relief and Recovery Arrangements (NDRRA) are the primary mechanisms for the Commonwealth Government to fund disaster relief and recovery activities by local, state and territory governments. NDRRA funding accounts for the majority of Federal Government spending on natural disasters. The arrangements were established in 1974 and assist state, territory and local governments with the fiscal burden of large-scale expenditure on disaster relief, recovery payments and infrastructure restoration.



While the NDRRA operated for many years without significant levels of losses, the events of 2011 served as a reminder that Australia is subject to significant natural peril risks. The level of attention given to the NDRRA since that time (including through the current review) suggests that losses of the magnitude seen were not anticipated.

Given the continuing advances in the understanding and modelling of natural perils, there is scope for government to improve its understanding of the natural peril risks to which it is exposed. Two examples of how improvements could be made to the NDRRA information held and assessed include: further clarity on the 'Essential Public Asset' definition and assessment by event year not finance year. A sound understanding of the underlying risks will provide important input for discussions around different government funding models and the appropriate 'equity' of different funding arrangements, or mitigation projects.

It is important we get a clear cohesive view of the risks that Australia is exposed to and get a good understanding of the basic risk questions such as:

- ▶ What are the risks and their associated costs?
- ▶ How might they change?
- ▶ How might the risks respond to different mitigation strategies?

By examining the risk, the benefit of all available risk management and mitigation options can be appropriately considered e.g. mitigation options, public asset design and location, pre-funding, benefits of insurance etc.

The temporary flood levy introduced post the 2011 floods, was largely required to cover the reconstruction of roads. Consideration should be given by the Federal and State governments to the extent to which they want to reduce the possibility of future calls for additional funding (beyond budgeted), and the size and likelihood of events that could cause this. This could be evaluated with suitably derived government level risk metrics, such as the opportunity cost of additional disaster funding and changes in borrowing cost post serious events, by giving due consideration to risk and risk mitigation quantification. An optimisation exercise on Australia's treatment of disaster funding and mitigation would enable risk and mitigation options to be quantified and assessed.

### **3.2 Application of risk management principles**

The Actuaries Institute considers that through the application of risk management principles improved decision-making will emerge over time providing better outcomes from a social perspective e.g. lower loss of life and an economic perspective. With clear allocated responsibilities this would result in the pursuit of a better understanding of the risks faced, how these risks change relative to the decisions made and how options such as risk financing and transfer responses could be of benefit.

The Commonwealth has an important ultimate role to play in natural disaster relief and recovery arrangements and its commitment is warranted and important. However, there is a need for any Commonwealth backing to be based on a formal assessment and the provision of a standard and common set of risk management metrics.



## 4. Options to achieve an effective and sustainable balance of natural disaster recovery and mitigation to build the resilience of communities

### Recommendation

The Actuaries Institute recommends full consideration be given to the different funding options including the creation of a temporary reinsurance pool with strict mitigation targets, direct mitigation infrastructure funding by government through taxes/levies or mitigation projects funded through private capital with exclusive rights.

The level of federal government funding and donations has varied considerably from one disaster to the next. Insurers making ex-gratia payments and governments paying post-event compensation encourage those at risk to be less self-reliant.

#### 4.1 How can mitigation be funded?

There is general agreement that mitigation is required but how should it be funded? Should it be funded by the receiver of the benefit or spread across the community as a public infrastructure project and funded by taxpayers?

Where there is a significant impact on individuals, we consider it is appropriate that equity considerations of what information was available when the individual took the risk decision be taken into account. Not all risks can be mitigated, for example, Far North Queensland is a high cyclonic area and therefore there are limits to the risk reduction that can be achieved.

The Actuaries Institute recommends that full consideration be given to the different funding options. Three specific funding models include:

1. Temporary reinsurance pool with clear risk price signals and mitigation targets.
2. Direct mitigation infrastructure spending funded by local, state or Federal government.
3. Direct mitigation infrastructure spending funded by private capital.

Each of these options are discussed further below.

#### 4.2 A temporary reinsurance pool with clear risk price signals and mitigation targets

Mitigation efforts typically take many years to implement. A potential funding mechanism for infrastructure development is a national reinsurance pool. Where insurance cover is not available at an affordable price commercially, the pool would be constructed to provide financial incentives to encourage flood mapping and mitigation actions, with the aim of eventual wind-up over 10 or 15 years.

In the short-term, before mitigation benefits are realised, the national reinsurance pool could allow natural disaster costs to government budgets to be smoothed, which allows for better planning, budgeting and funding of mitigation costs. The profits from the reinsurance pool could be invested in infrastructure mitigation projects. Acting as a reinsurer will alleviate some temporary market dislocations where affordable insurance cover is not available via the private insurance



market and minimising the distorting effects of the government participating in a market currently provided by the private sector.

The Australian insurance market generally meets societies' needs well. Premiums are determined largely as a function of risk, enabling insurance costs to be an effective tool to encourage risk management. Any government intervention in the insurance market must be careful not to inadvertently promote risk-taking behaviour by dampening the relationship between risk taking and loss funding. For example, the National Flood Insurance program in the US resulted in significant losses due to the incentivisation of developments in ecologically vulnerable areas. We do not advocate replacing or impairing the insurance industry where it is currently meeting the requirements of society. We do, however, advocate consideration be given to the need for intervention to assist consumers who cannot afford insurance or avoid insurance with the expectation that the community will provide compensation for losses.

To be effective any reinsurance pool would need to be set up appropriately. Any pooling arrangement should only be set up on a temporary basis and should include clear mitigation targets in order to reduce the risk and premiums over time. It should only apply to existing properties and would not be applicable to new developments, so that the problem is not compounded by allowing the market to increase exposure and vulnerability. The pool should not blunt the insurance price signal to consumers, the government and the community as a whole. Successful examples of temporary pools include: the Australian Reinsurance Pool Corporation set up by the Commonwealth Government to manage a 'terrorism pool' funded by an explicit levy on all non-residential commercial insurance policies. A similar successful temporary co-insurance pool called the Community Care Underwriting agency was established in 2004 when there was a public liability insurance crisis in 2004.

If this pool were to be established, the Institute proposes that:

- ▶ the extent of any subsidisation of premiums be contingent on local and state councils, and potentially homeowners and businesses (i.e. the stakeholders) undertaking (or at least contributing to) adequate risk mitigation. It is important that the premiums charged for high-risk properties provide an incentive to individuals and communities to implement risk mitigation efforts, and not encourage undesirable development;
- ▶ the pool could act as a mechanism for co-ordinating loss funding and appropriate development decisions;
- ▶ the Government set an objective to reduce the size of any post-disaster funding intervention over time as mitigation actions reduce the number of properties at high-risk of disaster; and
- ▶ that such a pool could cover flood and actions of the sea, with extension to other perils with consideration given to any mitigation actions available

#### **4.2 Direct mitigation infrastructure spending – Government-funded**

An alternative funding option is for direct investment in mitigation infrastructure projects. This could be funded by local councils and state and Commonwealth Governments via a new tax or specific levy collection e.g. fire service levy on council rates. Funding of mitigation projects has been limited to date. This is in part due to current government budget pressures. Non-partisan support is essential to ensure an infrastructure mitigation budget is funded.

Direct infrastructure investment will not address any affordability issues in the short-term. As mitigation efforts will take some time to develop, post disaster funding by government is likely to continue. Another option is for the government to subsidise premiums charged for high-risk



properties directly without a pooling mechanism, but such a subsidy would not be able to provide both funds and financial incentives for mitigation actions as a primary objective.

#### 4.3 Direct mitigation infrastructure spending – Private capital funding

Private capital may be willing to invest in resilience infrastructure projects provided appropriate return on investment is available. Mechanisms that provide some form of exclusive pricing/rental income to those who benefit from the infrastructure can achieve this.

## 5. Projected medium and long-term impacts of identified options on the Australian economy and costs for governments

### Recommendation

The Actuaries Institute recommends that all analysis of natural disaster risk management and mitigation strategy take into account the impact of different climate change scenarios as determined by the latest IPCC findings.

Australia is exposed to significant natural perils and disasters. The cost of natural disasters in Australia is forecasted to rise from \$6.3 billion a year currently to around \$23 billion a year in 2050<sup>i</sup> as population density increases, even without any consideration of the potential impact of climate change.

In the medium to long-term, the potential impact of climate change on natural perils and disasters is expected to be significant. The recent Intergovernmental Panel on Climate Change (IPCC) report, *Climate Change 2014: Impacts, Adaptation, and Vulnerability* notes that “For most economic sectors, the impacts of drivers such as changes in population, age structure, income, technology, relative prices, lifestyle, regulation and governance are projected to be large relative to the impacts of climate change (medium evidence, high agreement).”

However, the IPCC report also notes with very high confidence that “impacts for recent climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability”. Insurers and reinsurers have already begun adjusting their risk assessments for natural perils, as noted in the recent Lloyd’s of London report *Catastrophe Modelling and Climate Change*.

Climate scientists have highlighted that the greatest uncertainty regarding the likely future impact of climate change is due to the unknown level of future emissions, which will depend on international responses. Further, whilst the global impact of temperature change is well understood, the impact on individual regions is less certain. Nonetheless, for Australia, the IPCC also notes a medium to very high risk of both increased frequency and intensity of flood damage to infrastructure, settlements, coastal areas, and low-lying ecosystems.



The Institute would be pleased to discuss any of these recommendations in more detail. Please do not hesitate to contact our Chief Executive Officer, David Bell, on (02) 9239 6106 or email [david.bell@actuaries.asn.au](mailto:david.bell@actuaries.asn.au) if you wish to discuss the matters raised in this submission.

Yours sincerely

Daniel Smith  
President

#### The Actuaries Institute

As the sole professional body for actuaries in Australia, the Actuaries Institute represents the position of its members to government, the business community and the general public. We are committed to providing independent and expert advice on public policy issues where there is uncertainty of future financial outcomes.

As a professional body, the Institute holds the 'public interest' or 'common good' as a key principle in developing policy. Our contributions to public policy are guided by the following principles:

- ▶ Individuals should be given fair treatment.
- ▶ The need to take a long-term policy view, with appropriate transitional arrangements.
- ▶ Ensure that consequences of risk-taking behaviour are borne by the risk-taker.
- ▶ Public sector involvement where the market does not meet societal needs.
- ▶ Clear and reliable information available for decision-making.



Risk management frameworks are used by companies and government authorities to assist in the managing of risks. Risk management disciplines and frameworks that APRA requires insurance companies to implement would be useful for enhancing the practice of risk management with regard to disaster resilience in Australia and for determining how mitigation projects should be prioritised. APRA notes “Risk management is an essential component of an insurance company’s ability to deal with its internal and external sources of risks and therefore, its capacity to reduce and manage any adverse effects on its policy owners, operations and reputation”.

Risk management frameworks are used to manage all risks across an organization, in a structured and consistent manner, reflecting the inter-relationships between risks. Determining a risk management framework ensures those ultimately responsible for it are appropriately aware of the issues and responsible for identifying known and emerging risks; setting of risk appetites and risk tolerances; assessing the nature, complexity and magnitude of the risks faced by the community; and the cost/benefit trade-offs of alternative mitigation activities.

A framework should:

- ▶ be capable of identifying emerging risks as well as being flexible enough to cope with changing circumstances;
- ▶ consider the way in which community safeguards, such as the NDRRA, are used in determining risk appetite and risk limits;
- ▶ consider the community’s response to extreme events;
- ▶ aim to avoid a silo approach to risk management, allowing different communities to understand interactions and interdependencies between risks faced; and
- ▶ require integration of risk management and measurement into strategic planning and decision making processes. The aim being to ensure that a community’s strategy is aligned with its risk appetite and ensuring that key management decisions are made in a ‘risk aware’ manner.

By identifying and addressing risks in this manner, and by focusing on upside as well as downside risks, communities will be better protected and positioned for sustainable growth and prosperity, improving and protecting community values and lifestyles. Determining a framework would provide clarity around risk management roles and responsibilities across different levels of government, the community and businesses. It would also assist in embedding a culture of risk management across government and communities.

Mitigation options may not always be cost effective, however the establishment of a risk management framework would allow a cohesive view of all the risks to be compared.

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<sup>1</sup> <http://australianbusinessroundtable.com.au/assets/Natural%20Disaster%20Roundtable%20Paper%20Web%20version%20January%202014.pdf>

<sup>4</sup> <http://www.insurancecouncil.com.au/industry-statistics-data/flood-cover>