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Committee Secretary
Senate Standing Committee on Environment and Communications
PO Box 6100
Parliament House
Canberra
ACT 2600

RE: RECENT TRENDS IN AND PREPAREDNESS FOR EXTREME WEATHER EVENTS

I am thankful for this opportunity to make a submission to the Senate Standing Committee on Environment and Communications. In looking at the Terms of Reference of the inquiry into Recent Trends in and Preparedness for Extreme Weather Events, my submission will centre on (b)(iii):

> *Based on global warming scenarios outlined by the Intergovernmental Panel on Climate Change and the Commonwealth Scientific and Industrial Research Organisation of 1 to 5 degrees by 2070 the availability and affordability of private insurance, impacts on availability and affordability under different global warming scenarios and regional social and economic impacts.*

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Author Background

In making this submission I draw upon my expertise of insurance law, catastrophic risk, climate change and adaptation measures for extreme events. I am currently employed as university lecturer within the La Trobe University School of Law. I am also undertaking a PhD thesis on catastrophic risk and insurability for which I have an Australian industry scholarship with the Bushfire Co-operative Research Centre and an international industry scholarship with the International Association of Wildland Fire. I currently operate a consulting firm specializing in advice on insurance and catastrophic risk (both natural and man-made). I have also worked with the OECDs Directorate for Financial and Enterprise Affairs on issues surrounding catastrophic insurance regimes.

I am currently a member of a research team providing advice to the Victorian Centre for Climate Change Adaptation Research dealing with the legal and regulatory implications of climate change. A list of some of my publications and experience can be found on my La Trobe academic profile http://www.latrobe.edu.au/law/about/staff/profile?uname=R3Carter

Given my research expertise in the area of insurance law I will confine my submission to issues surrounding availability and affordability of private insurance. This will be examined within the framework of potential climate variability.

The Stern Report on Climate change specifically cited an increase in bushfires, flooding, drought and heatwaves as the most probable outcomes from climate variability.[1] There was however suggestions about uncertainty of the exact extent of the resultant changes. This uncertainty was because a change of 5 degrees in the earth's temperature has not occurred since the Ice age. 'Even an increase of 2°C above pre-industrial levels would have significant implications for the distribution of rainfall in Australia, the frequency and intensity of flood and drought, the intensity of cyclones and the intensity and frequency of conditions for catastrophic bushfires.'[2] The likely implications of an increase in temperature will thus be central to the submission on access and affordability of insurance.

The starting point for the submission is to ensure that the Senate Committee recognises that some of the projected extreme events would be covered under standard insurance contracts (should the same legal and regulatory framework for insurance operate). In contrast, other events would not automatically be included in a standard insurance policy. For example, bushfires are ordinarily included within a standard insurance contract whereas flooding is often provided at an additional charge.

[1] M. Meinshausen, 'What does a 2°C target mean for greenhouse gas concentrations? A brief analysis based on multi-gas emission pathways and several climate sensitivity uncertainty estimates', in H.J. Schellnhuber et al (Eds.) *Avoiding Dangerous Climate* (Cambridge University Press, Cambridge, 2006) p. 265 - 280.
[2] Ross Garnaut, 'Garnaut Climate Change Review – Update 2011: Australia in the Response to Climate Change' (Research Report Update 2011, Parliamentary Library, Parliament of Australia, 2011) p. 8.

Summary

Recently there have been a number of parliamentary reports[3] which have questioned the availability of insurance and the adequacy of the current insurance and regulatory regime for covering extreme events. The biggest issues which have emerged show problems with all Australians having access to affordable insurance coverage.[4] Even when insurance is available the events of the last few years have shown a trajectory of increasing costs involved in obtaining insurance coverage. Further, should the risk appetite from the international insurance market decrease, the primary insurance market operational within Australia is likely to continue to limit access to insurance. In some areas the risk may be deemed to be so high that there will be no available coverage for flood from the private insurance market. The problem is equally applicable to the problems associated with cyclonic events whereby insurers are in some instances indicating a willingness to discontinue offering insurance coverage in the future unless mitigation measures are implemented and properties become more resilient.[5]

Currently the legal and regulatory framework governing the provision of insurance coverage (for private properties) is premised upon a free market economy. The individual insurance firm has autonomy in relation to the price at which they wish to offer insurance coverage. Insurers also have choice (subject to market based competition) about the circumstances where they wish to provide insurance cover. Insurers who want to limit their exposure are also able to do this and exclude any event provided the insured is informed of this.[6] The only real qualification is that should a term or condition in an insurance contract be unusual (that varies from what a prescribed contract[7] contains) this must be specifically brought to the attention of the insured.[8]

The domestic and international market competition generally works sufficiently well to moderate the insurance market for ordinary contingencies (e.g.: household theft, household fires etc.). However, the risks posed by catastrophic events[9] and likely outcomes of global warming pose a unique set of challenges.

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[3] Senate Economic References Committee, Parliament of Australia, *The Asset Insurance Arrangements of Australian State Governments* (2011); Queensland, Queensland Flood Commission, *Inquiry, Inquiry into Flood Insurance* (2011); National Disaster Insurance Review (Treasury), Parliament of Australia, *Inquiry into Flood Insurance and Related Matters* (2011); House of Representatives Standing Committee on Social Policy and Legal Affairs, Parliament of Australia, *In the Wake of Disasters: The Operation of the Insurance Industry during Disaster Events* (2012); Victoria, 2009 Victoria Bushfires Royal Commission, *Final Report* (2010).

[4] Rachel Anne Carter, 'Bushfire Losses Reignite Debate about Insurance Reform' *The Conversation* (Australia) 14 January 2013 <http://theconversation.edu.au/bushfire-losses-reignite-debate-about-insurance-reform-11512>

[5] Edward Mortimer, Anthony Bergin and Rachel Carter, 'Sharing Risk: Financing Australia's Disaster Resilience' (Australasian Strategic Policy Institute, 2011) pp. 9 – 20; Anthony Bergin, Edward Mortimer and Rachel Carter, 'Deciding Just Who Picks up the Tab after a Catastrophe', *The Australian* (Australia) 12 February 2011.

[6] *Insurance Contracts Act 1984* (Cth) s 35.

[7] *Insurance Contracts Act 1984* (Cth) s 34.

[8] *Insurance Contracts Act 1984* (Cth) s 37.

[9] Professor Danuta Mendelson and Rachel Anne Carter, 'Catastrophic Loss and the Law: A Comparison between the Black Saturday Fires and the 2011 Queensland Floods and Cyclone Yasi' (2012) 31 (2) *University of Tasmania Law Review* pp. 32, 52 – 53.

*Please note that a full copy of this article has been attached to the submission.

The greatest challenges are:

- **High levels of individuals with inadequate insurance coverage, leaving a significant shortfall between the cost of coverage and the potential cost of rebuilding;**
- **Although some may claim individual choice, a problem may arise when despite exercising a choice not to have insurance cover; the same people seek to rely upon government assistance in the aftermath of an extreme event. This would create an undue burden on the government;**
- **The current legislative framework encourages insurers to determine when they wish to provide insurance coverage for a particular event (meaning that insurers can decline to provide coverage in certain areas where the risk is significantly high);**
- **The uncertainty posed by climate change renders traditional probabilistic modelling and actuarially sound methods for determining the price of insurance policies to be inappropriate for calculating risks caused by future climate variability;**
- **Institutionalised lack of transparency and accountability;**
- **Increasing global phenomena of extreme events which could result in a reduction in the risk appetite of the international reinsurance market (for which Australia currently relies heavily upon);**
- **Economic implications for Australia (including a potential decline in GDP) arising out of extreme events;**
- **Controlling the risk exposure of the Commonwealth Government and ensuring adequate measures are implemented to safeguard economic and fiscal stability.**

Current Challenges

At the present, even without an increase in the earth's core temperature, there are problems within the current insurance and regulatory regime. Importantly, the existing regime is ill equipped to deal with specificities of extreme events, particularly given the calculation of risk for extreme events varies from traditional understandings of economic theories such as the law of large numbers. This is problematic given the Australian Securities and Investment Commission suggests 'the level of underinsurance in Australia is high…surveys suggest that between 27% and 81% of consumers were underinsured by 10% or more against the current rebuilding costs.' [10] Given changes in building regulations and the need to ensure properties are more resilient to extreme events the extent of underinsurance could be much higher to reflect the increases in the cost of rebuilding a property to the same or similar standards as what existed pre extreme event.

In 2011, the Queensland Floods and cumulative impact of Cyclone Yasi indicated the effects that underinsurance can have not only on the livelihood of individuals but also upon the Australian economy.[11]

[10] Australian Securities and Investment Commission, *Report 54: Getting Home Insurance Right- A Report on Home Insurance and Building Underinsurance* (September 2005).
[11] Rachel Anne Carter, 'Flood Risk, Insurance and Emergency Management in Australia: Queensland 2011' (2012) 27(2) *Australian Journal of Emergency Management* pp. 20 - 25.

In the aftermath of the Queensland floods the *Insurance Contracts Act 1984* (Cth) was modified. The key motivation for this legislative reform was to incorporate a uniform definition of flooding which helped clarify the term 'flood'.[12] The introduction of the uniform definition of 'flood' was a direct response to confusion amongst some insurance policy holders. Many individuals have attested that they believed they had insurance coverage for all types of flood. In reality some of these people had an exclusion clause in their insurance policy which meant they were not covered during the Queensland floods. Previous use of insurance specific terminology meant that some people would be covered if the flooding was the result of rain inundating a property (flash flooding) but not if the cause of the flooding was due to a river bursting its banks (riverine flooding) for example.[13] Understandably, a number of consumers were unable to differentiate between definitional variations within insurance policies. When parliament enacted legislation facilitating the uniform definition it also enacted legislation governing the operation of a Key Facts Sheet. The Key Facts Sheet is designed to simplify and summarise insurance coverage for consumers.[14] Although it appears these have improved the confusion surrounding whether an insurer is offering insurance coverage for flood risk, it does little about the cornerstone issues of access to insurance and affordability of insurance coverage.

Legislative and Regulatory Regime Governing Insurance in Australia

The insurance industry in Australia is governed by legislation dictating that each insurance firm should operate as a commercial entity.[15] This is coupled with procedures for ensuring an adequate balance between consumers and insurers in relation to the operation of the insurance contract. When the *Insurance Contracts Act 1984* (Cth) was implemented it sought to remedy unfair practices in insurance. However, the operation of the legislative framework under which the *Insurance Contracts Act 1984* (Cth) operates is such that the autonomy of the individual insurer remains a paramount consideration in providing insurance services.

Pricing of insurance premiums are entirely within the autonomy of the insurer, but may be shaped by commercial market considerations. Insurers are encouraged to price risk using actuarially sound models. A problem posed by global warming and climate change is that it may render historical trends irrelevant. Questions also arise about the suitability of current actuarially sound models for determining the likely losses arising from climatic

[12] Explanatory Memorandum, *Insurance Contracts Amendment Bill 2012* (Cth), 2012, p. 14.
[13] Rachel Anne Carter, 'Flood Risk, Insurance and Emergency Management in Australia: Queensland 2011' (2012) 27(2) *Australian Journal of Emergency Management* pp. 20 - 25.
[14] *Insurance Contracts Act 1984* (Cth) Div 4, s 33A – s 33D.
[15] *Corporations Act 2001* (Cth).

events in the future. To date, the utilisation of probabilistic modelling and historical events to predict a likely future trajectory of risk and damage has been satisfactory.[16]

In the recent past, 2011, was the worst year on record for insurance losses caused by catastrophic events. The losses endured in 2011 in Australia were part of a worldwide trend towards increasing catastrophic events.[17]

However, as climate variability alters the size, impact and frequency of events existing pricing structures are being questioned. Notwithstanding the known exposure of some areas, profitability and demand for housing means that more property is being located in vulnerable areas. The granting of planning permission to develop areas with great risk exposure uncovers the lack of transparency and accountability for such decisions. This evidences greed as part of modern life whereby often profitability is becoming a greater motivating factor for many key players. The potential profitability of allowing certain land to be zoned as residential may in the short term bring growth, but in the longer term it is likely to simply aggravate the losses arising from extreme events. Therefore viewing this issue from a long term perspective given the threat of global warming the focus should shift on preventing future losses by properly zoning new areas based upon risk and ensuring world class resiliency standards for areas where property and infrastructure is already located.

Essentially, profitability is becoming the paramount consideration to the detriment of the safety of persons or property in some areas. From an insurer's viewpoint this warrants conservative increases in the cost of providing insurance.

Primary and Secondary Insurance Structure in Australia

From a systemic viewpoint, the Australian insurance regime is generally comprised of two layers of coverage (primary insurance coverage and secondary insurance cover). Australia's primary layer of insurance cover derives from insurance products offered by local and international insurance firms. The Australian Prudential Regulation Authority requirements ensure fiscal stability and require minimum levels of assets that an insurance firm must maintain to continue to operate within the Australian market. Due to the asset maintenance requirements, most insurers only withhold a defined threshold of the overall risk, obtaining secondary coverage from the international reinsurance market for the remaining risk. The advent of global warming means that there will be greater strain on the international reinsurance market which may result in a reduction in the risk appetite and thus increasing difficulty in obtaining sufficient coverage.

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[16] Rachel Anne Carter, 'Bushfire Losses Reignite Debate about Insurance Reform' *The Conversation* (Australia) 14 January 2013 <http://theconversation.edu.au/bushfire-losses-reignite-debate-about-insurance-reform-11512>

[17] Munich RE, 'Topics Geo: Natural Catastrophes 2011 Analysis, Assessment and Position' (Report, Münchener Rückversicherungs-Gesellschaft, Munich, 2012) pp. 50 – 51, 54.

In the aftermath of September 11, 2001 due to the collapse of the Twin Towers there was a backlash on the provision of insurance coverage for terrorism risk. The limited access to terrorist insurance was a global phenomenon. The result of this event and the continued threat of terrorism meant that the private insurance industry refused to offer insurance coverage. The market failure in many nations around the world resulted in the creation of a number of specific government based programs. These programs were specifically designed to assist with reinsurance coverage for terrorism risk and enable the private insurance market to continue operate. The problems leading to this failure was recently discussed in the OECDs Second Conference on Terrorism Risk and Insurance Risk in 2012 held in Paris on 5 December 2012.[18] *One overarching lesson from this invitation only event was that some risks are such that the private market may not be able to provide a satisfactory solution.* Essentially, when property losses are too large for the private sector, the government may have to take a more active role in intervention.

Problems from the Queensland Flooding in relation to Access to Insurance Coverage- A Blueprint for Future Restrictions?[19]

Should the temperature of Australia rise by 1 to 5 degrees by 2070 the number of climate related events primarily flooding, fire, drought and cyclone may overwhelm the industry. Importantly, this may lead to insurers deciding not to cover vast areas of Australia.

In the aftermath of the Queensland Floods which generated several billion dollars of losses and affected the Australian GDP, there was a marked reluctance to cover some of the most risk exposed areas. In the small town of Roma, insurers were refusing to provide insurance coverage arguing that without the local, state or Commonwealth government intervening to reduce the risk exposure and actively implement mitigation measures the risk was too high for the insurance industry to absorb.

Given the current regulatory framework the insurance industry has the ability to forfeit insurance coverage from certain localities. Alternatively it is possible for insurers to limit the scope of an insurance policy so that it does not cover for example bushfire in certain areas that are prone to bushfires occurring. Despite bushfire currently being included within standard insurance contracts (prescribed insurance contracts under the *Insurance*

[18] OECD, 'Second International Meeting on Terrorism Risk Insurance', (OECD, Paris, 5 December 2012) <http://www.oecd.org/insurance/2ndinternationalmeetingonterrorismriskinsurance.htm>

[19] For a more detailed analysis see Rachel Anne Carter, 'Flood Risk, Insurance and Emergency Management in Australia' (2012) 27(2) *The Australian Journal of Emergency Management* pp. 20 – 25 as accessed at <http://www.em.gov.au/Publications/Australianjournalofemergencymanagement/Currentissue/Documents/WEMA%20Vol27No1_Carter.PDF>

*A copy of this article has been provided with this submission.

Contracts Act 1984 (Cth))[20], there is scope for insurers to change this in the future. Insurers can exclude any event, provided they inform the consumer about the operation of the exclusion.[21] At present, market forces help to ensure a degree of symmetry between common coverage of climatic events. Essentially competition is such that if one insurer failed to offer coverage for bushfires or cyclone (for example) they would be at a market disadvantage. However, given the possible increase in temperature arising from global warming if the cost of insuring certain events and a sufficient number of insurers refused to offer coverage in a certain area for a known risk, the consequence could potentially be dire for those who are living in risk exposed areas.

The government can utilise planning laws and building codes to limit future development in areas which have great exposure to risk. The problem remains however, in relation to the ability of individuals to economically protect their proprietary interest in housing which is located in areas which have been granted planning permission in the past. In some of the areas given planning permission at an earlier time, there may not have been knowledge of the risk exposure at the time of granting the planning permission. Alternatively, global warming may have extenuated an otherwise marginal vulnerability of a certain geographical locality to one or more extreme event/s.

There is also the issue of individuals who live areas which may become vulnerable to climate related events, but socioeconomic reasons and limited finances dictate their housing locality. Should they be denied access to insurance coverage this could be a serious problem with grave potential for their economic welfare and personal well-being.

Some suggest a simplistic ideal of moving people living in all disaster risk exposed areas. The problem, however extends far beyond one of merely relocating personal housing, rather it goes to potential regional, social and economic impacts of such actions. Individuals will often move locality if they can obtain employment at a similar or higher level to that currently undertaken. In regional areas, employment opportunities in some instances are scarce, thus relocating a significant number of houses can create social upheaval. Insurance is one issue, but it is an issue that must be positioned within its social context and within the need to ensure social cohesion. Climate change and insurability are part of the overall picture but must be carefully positioned so that any amendments are made within a holistic paradigm dealing with extreme events.

Regardless of the employment position of many Australians, for many the most valuable asset is the family home. Should access to insurance not be available to protect against damage to this asset this could result in poverty and a reduced level of individual and economic wellbeing. If an individual is subject to an increasing number of natural disasters for which they do not have access to adequate levels of insurance cover this will

[20] *Insurance Contracts Act 1984* (Cth) s 35.
[21] *Insurance Contracts Act 1984* (Cth) s 35, s 37.

have implications for the national economy. Although the insurance market could use climate change coverage or extreme event coverage as a boutique risk and profit off marketing such policies, the question is whether they will do so. If instead, insurance coverage becomes more difficult to obtain or more expensive then this will implicate various levels of Australian government (local, state and Commonwealth governments).

Those without access to insurance coverage will become a burden on the Commonwealth Government through the welfare system and other regimes. A glimpse of the Commonwealth Government's inability to deal with ad hoc assistance was seen in the aftermath of the Queensland Flooding. Prime Minister Julia Gillard introduced a Temporary Flood and Cyclone Reconstruction Levy to pay for the losses. The justification for the existence of this ill thought out and poorly implemented solution was that the losses had overwhelmed existing Commonwealth Government resources to pay for their proportion of the losses.

The existence of a levy is not problematic. In fact the provision of levies through taxation regimes or other means to raise capital for damage caused by natural disasters occurs in many parts of the world. The problem with the way that the Levy functioned in Australia in the aftermath of the Queensland flooding showed the inadequacy of ad hoc regimes for Australia should recurring extreme events continue. If a levy or other taxation measure is to be employed the utilisation must be clear and well researched. Further, the way the money is collected, invested and spent must show transparency and accountability to ensure that the money is injected into the issue of climate change and insurability.

Rather than thrusting the government into a precarious economic situation because of high levels of inadequate insurance, the issue of access to insurance for all Australians must be addressed and a solution sought and implemented as a matter of national importance.

Affordability of Insurance Coverage

Although access to insurance coverage is often a different issue to the affordability of insurance coverage there is an interlinking between the two issues. The link is that although the insurance market may offer insurance coverage in some areas if the cost is prohibitively expensive, the insurance penetration levels are likely to be relatively low. Many individuals respond by reducing the level of insurance coverage attributing affordability as their primary motivating factor. For some individuals, the cost of obtaining insurance is proportionate to the risk exposure as assessed by insurance firms using actuarially sound insurance models.

Yet, for others the uncertainty and the difficulty of accurately predicting risk, means that some insurers charge high premiums and artificially inflate the cost of insurance coverage. This causes the economic burden on those paying for insurance premiums to be prohibitively expensive for some people living in areas where there is uncertain or great risk exposure. For individuals falling within this latter category, a number of them will knowingly underinsure to ease the economic burden of paying for insurance coverage. Some rationalise this decision with a naive belief that bushfires will never affect them and yet if a bushfire or other catastrophic event destroys their home they may be thrust into a cycle of economic uncertainty and consequently experience poverty or heightened economic problems.

There is however a third category of individuals who are underinsured. These people perceive that insurance coverage is unaffordable or an unnecessary expense when it may not be, which may be due to human frailty. Although the current insurance system facilitates individual choice as to the level of insurance coverage, individual choice becomes problematic when those not covered by insurance burden the government in the aftermath of a bushfire.[22]

One of the problems with affordability of the insurance regime is that currently the legal and regulatory regime is premised upon insurers operating as commercial entities. Although this is a problem for affordability, from a systemic and regulatory viewpoint, insurers are operating in the manner in which they are obliged to behave. Given insurers are commercial entities they have obligations to operate profitably for their shareholders. Insurers thus will decline to offer insurance coverage in circumstances where the provision of such coverage is not profitable. Although some may blame insurers for doing this, they are simply fulfilling their institutionally entrenched role.[23] Therefore should this be changed there would need to be an overhauling of at least parts of the existing insurance and regulatory regime to facilitate widespread access at affordable rates.

Moral Hazard

One of the greatest challenges to assessing the insurance industry is ensuring that the system prevents moral hazard. If the insurance system is reformed the legal and regulatory framework needs to ensure there are sufficient institutionalised measures to encourage individuals to reduce their own risk exposure. The question is thus what can be done to better equip properties for extreme events due to climate variability? Additionally this raises a further question of who should be responsible to pay for such measures to

[22] Rachel Anne Carter, ‘Bushfire Losses Reignite Debate about Insurance Reform’ *The Conversation* (Australia) 14 January 2013 <http://theconversation.edu.au/bushfire-losses-reignite-debate-about-insurance-reform-11512>

[23] Rachel Carter, 'Flood Insurance Must be Made Accessible to All', *The Australian* (Australia) 13 January 2011, 14; Rachel Carter, 'Don't Blame the Insurers- Blame the System', *The Punch* (www.thepunch.com.au), 20 January 2011.

ensure that properties are more resilient and better able to withstand potential future damages.

The issue of moral hazard is particularly difficult in respect of those from lower socioeconomic backgrounds who may not be able to afford to undertake mitigation measures. In a number of rural communities around Australia there are people from lower socioeconomic backgrounds who live in certain areas due to a reduced property price. For some of these individuals they may make the decision to live in such areas notwithstanding the risk or potential for future extreme events to create property damage in that locality.

The National Disaster Insurance Review has suggested that for these people, a solution may be simply to provide government based subsidies to enable them to reduce the cost of insurance coverage and thus potentially better afford insurance coverage.[24]

The precarious balance thus must be drawn between utilising pricing as a mechanism to symbolise risk and encourage individuals to undertake risk mitigation measures and equity concerns about access and affordability. The OECD highlights that ensuring individuals do not engage in moral hazard yet facilitating the objectives of affordable insurance for all (regardless of risk exposure) is a difficult objective to achieve.[25]

In the context of climate variability a further challenge is presented which is the ability to respond to the unknown. Although hypothetical scenarios suggested the likely effects of a change in the earth's temperature of 1 degree to 5 degrees, most of the outcomes are mere possibilities. No one knows for certain what the reality of an increase in temperature will mean.

Climate variability has occurred and continues to occur over long periods of time, yet because the time span is so significant; the true implications are still yet to be determined. The challenge thus becomes one of preparing for the unknown. The moral hazard issue is thus further complicated by the unknown factors and the difficulty of getting individuals to prepare for possible outcomes which are likely to change as the state of scientific knowledge increases.

Recommendation

The Australian Government needs to ensure that they have an adequate framework in place dealing with insurance for extreme weather events. In reforming the current inadequacies the two key areas of concern must be access to insurance coverage for all Australians and affordability of insurance cover. The current

[24] National Disaster Insurance Review (Treasury), Parliament of Australia, *Inquiry into Flood Insurance and Related Matters* (2011), p. 4 (Pivotal Recommendation 3).
[25] OECD, *Disaster Risk Assessment and Risk Financing: A G20/OECD Methodological Framework* (OECD Publication, Paris, November 2012) p. 10.

insurance regulatory regime allowing for full autonomy of the insurer in determining where they wish to provide insurance coverage and the price at which they provide that cover may result in market failure should the number of extreme events escalate with the proposed temperature variation. The frequency and severity of extreme events and willingness of the private insurance market to provide insurance cover may see market changes in insurance in the future. There is cause to think that the solution to improving the levels of insurance penetration is government intervention or governmental involvement.

Conclusion

Based upon the most likely outcomes of climate variability should the temperature increase by 1 degree to 5 degrees by 2070, there are likely to be serious consequences for the private insurance industry. This submission has focused on the effects to household building and contents insurance coverage.

The current legal framework governing insurability in Australia is likely to enable insurers to continue to raise the prices for obtaining insurance coverage and to decline to cover properties in certain areas as the risk increases. Changes thus must occur to ensure that as a nation, Australia is resilient and able to withstand the potential outcomes of climate variability. Economic protection through insurance should be part of the initiative. Insurance should assist in ensuring resiliency to extreme events and facilitate recovery where losses are inevitable. Individuals should be more aware of the need for insurance coverage and the value that such economic protection can have on their future well – being. The potential changes required to adapt the insurance regime to better deal with potential extreme events are not superficial changes but may rather demand institutional and legislative changes.

The Australian government has a number of options available to modify the existing insurance regulatory regime to better enable all Australians to have access to affordable insurance coverage. The regime must however be workable and thus encompass sufficient mechanisms to prevent individuals engaging in behaviour which shows moral turpitude.

Some of the options available include:

- **Maintaining the status quo;**
- **Catastrophic bonds;**
- **Government subsidies in the provision of insurance;**
- **Individual responsibility for losses;**
- **Ad hoc recovery measures;**
- **Ex ante insurance measures;**
- **Specific purpose taxation levies (such as the Temporary Flood and Cyclone Reconstruction Levy);**

Although a number of options are available given the enormity of the problem of climate change and resultant increased extreme events, government intervention is warranted. The exact extent of the involvement will require careful consideration of who should have responsibility for protecting properties against loss and what resources are able to assist this. Importantly, there is a need for a private insurance market in Australia, so any governmental involvement should not undermine the existence of this private insurance market. 'In intervening, the government needs to recognise potential adverse impacts, which include possible policyholder and insurer moral hazard and crowding out effects.'[26]

Sincerely,

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[26] OECD, *Disaster Risk Assessment and Risk Financing: A G20/OECD Methodological Framework* (OECD Publication, Paris, November 2012) p. 70.