



Australian Government
Attorney-General's Department

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Commissioner
Australian Government Productivity Commission
Level 2, 15 Moore St
CANBERRA CITY ACT 2600

Dear Dr Craik

**Barriers to Effective Climate Change Adaptation
Submission by the Attorney-General's Department**

On 29 November 2011, I indicated that the Attorney-General's Department would provide a submission on the Commission Issues Paper 'Barriers to Effective Climate Change Adaptation'.

Climate change adaptation is an area of concern to the Department. One of the great challenges for the Australian emergency management community is to respond effectively to the consequences of climate change.

The Department's submission comprises chapters on the:

1. National Strategy for Disaster Resilience
2. National Partnership Agreement on Disaster Resilience
3. Natural Disaster Relief and Recovery Arrangements
4. Critical Infrastructure Resilience Strategy
5. Natural Disaster Insurance Review

I hope that the Department's submission will be of interest to the Commission.

Yours sincerely

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Barriers to Effective Climate Change Adaptation Productivity Commission Issues Paper

Submission by Attorney-General's Department

December 2011

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Introduction

Emergency Management and Climate Change

The *Garnaut Review 2011* addressed the question to what extent recent natural disasters such as the 2009 Victorian bushfires and 2011–12 Queensland floods are due to climate change. The Review made a number of points¹:

- Average temperatures in Australia are rising. The decade ending 2010 was the warmest since recordkeeping began.
- Single events must be viewed within the context of the growing dataset on climate change information.
- The regional variability of climate change will also manifest in severe weather events of an intensity that is rare at a particular place and time of year.
- While it is difficult to attribute specific causes to individual severe weather events, climate change is expected to increase the risk of extreme events.
- It is not possible to say categorically that an extreme weather event would not have occurred but for climate change.

¹ See "New Climate Observations", *Garnaut Review 2011* at 6ff.

- The reflection of global warming in severe weather events is in an early and weak stage. As climate change continues, severe weather events are likely to increase in frequency and intensity.

In short, while there is an increased risk of extreme weather events due to climate change, it is not possible to predict individual events or to attribute them to climate change. The Australian emergency management community, which includes State and Territory emergency services, SES and other volunteers, academics and policy agencies, faces the challenge of dealing with this increased risk and uncertainty. In effect, the emergency management community must deal with the consequences of climate change.

Emergency Management and Effective Climate Change Adaptation

Emergency management in Australia is built on the concept of prevention, preparedness, response and recovery (PPRR). Over recent years, there has been a considered move to give greater emphasis to prevention and recovery in addition to the focus on response. This move does not diminish the importance of preparedness and response capabilities. It is vital that governments and emergency services remain well prepared to respond to disasters and other adverse events. In the context of emergency management, effective adaptation to climate change means getting the PPRR balance right in order to minimise the harm done by natural disasters.

Emergency Management and Barriers to Effective Climate Change Adaptation

Each of the emergency management initiatives discussed in this submission faces barriers to effective climate change adaptation. For example, the National Strategy on Disaster Resilience aims to achieve a national, coordinated approach to building resilience. Effective coordination and cooperation across different levels of government across Australia and across different parts of the emergency management community is essential to allocating resources effectively in order to optimise PPRR. However, traditional government portfolio areas and service providers, with different and unconnected policy interests may be attempting to achieve the right PPRR balance individually. This has resulted in gaps and overlaps, which may hamper effective action and coordination at all levels and across all sectors.

Another example of a barrier to effective adaptation is the set of problems associated with risk information sharing. Underpinning effective disaster management in the face of climate change — the right PPRR balance—is knowledge and understanding of disaster risk. Everyone shares the responsibility to understand these risks. By understanding the nature and extent of risks, we can seek to control their impacts, and inform the way we prepare for and recover from them. Further work is needed to improve information and data sharing; and more could be done to determine what hazard and risk information could most usefully be communicated to communities. The final two sections of this submission—the Critical Infrastructure Resilience Strategy and the National Disaster Insurance Review—are especially concerned with the policy challenges associated with risk information sharing.

This submission addresses the ways in which the Australian emergency management community is responding to challenges like those mentioned above. In doing so, it addresses several of the questions posed by the Productivity Commission's Issues Paper.

1. National Strategy for Disaster Resilience

1.1. Relevant Questions from Issues Paper

- *Are there significant overlaps or inconsistencies between the adaptation policies of different levels of government? If so, what are these and what problems might they cause for effective adaptation? Alternatively, where differences exist, are there good examples of cooperative arrangements that could be adopted more broadly?*
- *Is there a need to alter policy responsibilities (or clarify responsibilities) across the different levels of government in order to facilitate adaptation?*

1.2. Policy Setting

Over the past decade, governments have collaborated on reforming disaster management approaches. On 6 November 2008, the Ministerial Council for Police and Emergency Management – Emergency Management (now the Standing Council for Police and Emergency Management) agreed that the future direction for Australian emergency management should be based on achieving community and organisational resilience. On 7 December 2009, the Council of Australian Governments (COAG) agreed to adopt a whole-of-nation resilience based approach to disaster management, which recognises that a national, coordinated and cooperative effort is needed to enhance Australia's capacity to withstand and recover from emergencies and disasters.

The National Emergency Management Committee (NEMC) was tasked by COAG to drive and coordinate the development of the National Strategy for Disaster Resilience (the Strategy). A Working Group, consisting of federal, State and Territory representatives under the auspices of NEMC, developed the Strategy.

The purpose of the Strategy is to provide high level guidance on disaster management to Federal, State, Territory and local governments, business and community leaders and the not-for-profit sector. It is the first step in a long-term, evolving process to deliver sustained behavioural change and enduring partnerships.

COAG endorsed the Strategy in February 2011.

A copy of the Strategy is available on the COAG website at www.coag.gov.au.

1.3. Climate Change Adaptation

The *Garnaut Review 2011* stressed the importance of a coordinated, national approach to climate change adaptation. The Review referred to recommendations from the National Climate Change Forum held in February 2010. It is worth quoting the Review at some length:

Without coordinated action, there is an increased chance of inefficient and wrongly focused adaptation—of actions that, while delivering short-term benefits, may exacerbate vulnerability to climate change over the longer term. The forum concluded that national action was needed to enhance consistency in policy and regulatory settings across jurisdictions, and identified a number of key issues—sea-level rise planning benchmarks, risk guidance for planning and development, legacy issues and legal liability, building codes and standards, and integrated regional planning approaches. A major barrier to adaptation identified by the forum was moral hazard—the expectation that government will support those whose property is damaged by an extreme event—which presents a disincentive to prepare for future risk².

The Review further noted that the Strategy, ‘demonstrates an increased focus on emergency planning and the implications of climate change for disaster preparedness and highlights the change in emphasis from reactive responses to proactive risk-reduction measures.’³

The Strategy’s change in emphasis to proactive risk-reduction measures is reflected in its placing the concept of resilience at the centre of emergency management. Resilience is a key outcome because, as the Strategy notes, ‘[t]he size, severity, timing, location and impacts of disasters are difficult to predict, and our changing climate increases the uncertainty about future risks. Scientific modelling suggests that climate change will likely result in an increased frequency and severity of extreme weather events.’⁴

Community resilience is also important because of the moral hazard identified in the Review, namely the expectation that government will support those whose property is damaged by an extreme event and the resulting disincentive to take proactive risk-reduction measures. Meeting such expectations places the taxpayer in the role of being a default insurer. This is unsustainable and does not build resilience or improved emergency management outcomes.

The Strategy does not attempt to define community resilience; rather it focuses on common characteristics of disaster resilient communities, individuals and organisations. These characteristics are:

- functioning well while under stress
- successful adaptation
- self-reliance, and
- social capacity

The Strategy recognises that disaster resilience is a long-term outcome, which will require long-term commitment. It also stresses the importance of the notion of shared responsibility to resilience. There is a need for a new focus on shared responsibility, where political leaders, governments, business and community leaders, and the not-for-profit sector all adopt increased or improved emergency management and advisory roles, and contribute to achieving integrated and coordinated disaster resilience. Similarly, communities, individuals and households need to take greater

² *Garnaut Review 2011* at 107.

³ *Id* at 108.

⁴ *At* 2.

responsibility for their own safety and act on information, advice and other cues provided before, during and after a disaster.

1.4. Implementing the Strategy

The Strategy outlines seven priority areas that contribute to disaster resilience:

1. Leading change and coordinating effort
2. Understanding risks
3. Communicating with and educating people about risks
4. Partnering with those who effect change
5. Empowering individuals and communities to exercise choice and exercise responsibility
6. Reducing risks in the built environment
7. Supporting capabilities for disaster resilience

On 11 November 2011, NEMC reported to the Standing Council of Police and Emergency Management. Its report detailed the ways in which jurisdictions were taking action under the Strategy. To take a single example, to reduce risks in the built environment, Victoria has introduced: (1) enhanced requirements, including identification and mapping of bushfire prone areas with commensurate planning and building requirements, to address bushfire risk, and (2); performance standards for the design and construction of community fire refuges.

1.5. Challenges

There are a number of challenges associated with implementing the Strategy. These include the Strategy's complexity and the breadth and number of stakeholders, within and across jurisdictions and beyond the emergency management sector.

The availability of expertise to complete several of the Strategy's action items is problematic when jurisdictions are focussed on natural disaster preparations and response.

Jurisdictions need to balance adequate operational preparedness and recovery while ensuring investment in far-sighted systematic disaster resilience is maintained. This longer term change requires a paradigm shift, where gains may not be readily measurable in the early years.

These broad challenges are highlighted in the work to understand risk, reduce risk in the built environment, and the review of the effectiveness of Government and State/Territory relief and recovery funding and payment arrangements. While assessing, managing and treating risk is not new to emergency management, a coherent national resilience-based approach to disaster risk breaks new ground and has wide ranging policy implications.

The lack of appropriate and sufficient data complicates the reform process. This has been evident in the risk measurement, flood mapping and review of the effectiveness of relief and recovery payments.

Building disaster resilience is also contingent on the outcomes of work underway in other areas of government, such as the Government's Natural Disaster Insurance Review and under the Not-for-Profit Reform Agenda.

NEMC is working to address these challenges.

1.6. The Strategy and Questions from the Issues Paper

- *Are there significant overlaps or inconsistencies between the adaptation policies of different levels of government? If so, what are these and what problems might they cause for effective adaptation? Alternatively, where differences exist, are there good examples of cooperative arrangements that could be adopted more broadly?*

The Strategy is intended to guide a national and proactive approach to emergency management. While each level of government has different responsibilities with respect to emergency management, it is desirable that the work governments pursue individually contribute to a coordinated response to a national problem. Sharing information about risk is a key aspect of this coordinated response.

- *Is there a need to alter policy responsibilities (or clarify responsibilities) across the different levels of government in order to facilitate adaptation?*

There is no need to alter policy responsibilities in emergency management. However, as shown by the Strategy's key concept of community resilience, the role of the Government in emergency management needs ongoing development. This work will address the moral hazard, identified in the *Garnaut Review 2011*, presented by over-reliance by communities and individuals on governments.

2. National Partnership Agreement on Natural Disaster Resilience

2.1. Relevant Questions from Productivity Commission Issues Paper

- *Are there significant overlaps or inconsistencies between the adaptation policies of different levels of government? If so, what are these and what problems might they cause for effective adaptation? Alternatively, where differences exist, are there good examples of cooperative arrangements that could be adopted more broadly?*
- *Is there a need to alter policy responsibilities (or clarify responsibilities) across the different levels of government in order to facilitate adaptation?*

2.2. Policy Setting

In 2008, the Council of Australian Governments recognised climate change as a significant threat to the nation's economy, environment and way of life that would need to be addressed in a concerted, cooperative way. Governments agreed that some impacts from climate change are unavoidable but through effective and early action, the human costs of disasters could be reduced. Since then, the implementation of appropriate adaptation strategies to improve community disaster resilience and reduce disaster risk has progressed.

In 2009, the Government progressed a national, coordinated and cooperative effort to enhance Australia's capacity to withstand and recover from emergencies and disasters, given the increasing regularity and severity of natural disasters.

In 2009–10 the Government allocated \$110m over four years to the Natural Disaster Resilience Program (NDRP) for natural disaster mitigation. This Program replaced existing programs and reformed the Government's approach to emergency management by implementing a National Partnership Agreement to increase Australia's resilience to a range of disasters, including the expected increase in extreme weather events resulting from the impact of climate change. The funding provided by the Government to the States and Territories under the NDRP is intended to assist them in meeting their emergency management responsibilities.

Funding provided by the Government for the NDRP is administered through the National Partnership Agreement on Natural Disaster Resilience (the NPA) and State and Territory implementation plans. Through the NPA, the Commonwealth and State and Territory governments have committed to work together to enhance the resilience of Australian communities to the impacts of natural disasters.

The NPA was established to provide States and Territories with ongoing certainty of funding to achieve mutually agreed strategic aims and objectives in the natural disaster management sector. It encourages partnerships and innovation in the way we collectively manage natural disasters and enables jurisdictions the flexibility to target funds towards areas of highest need based on their individual State-wide risk assessments. Furthermore, the NPA meets the broader Government priorities of community resilience, support for emergency management volunteers, addressing the impacts of climate change and enhancing social inclusion.

The NPA recognises that all levels of government have a mutual interest in reducing the impact of, and increasing resilience to, natural disasters; and that all levels of government must work collaboratively with volunteer organisations, the private sector and non-government sectors to achieve these outcomes.

The NPA encourages partnerships and innovation in the way we collectively manage natural disasters.

As the NDRP matures, and State-wide risk assessments are completed, more consideration is being given to the strategic use of the funds for activities that enhance disaster resilience.

Copies of the NPA and associated implementation plans can be found on the Ministerial Council for Federal Financial Relations website <http://www.federalfinancialrelations.gov.au>.

2.3. Current Work

Since the inception of the NDRP, Australia has strengthened its community resilience to a range of natural disasters through the implementation of projects that not only address climate change but support volunteers, community education, early warning systems and infrastructure development for emergency management organisations. Such initiatives include, but are not limited to:

- flood management and mitigation strategies
- risk assessments and hazard mapping
- purchasing of portable power supplies and equipment
- local evacuation strategies

- emergency management volunteer programs
- education on disaster awareness for vulnerable members of the community
- procurement of equipment for training and management facilities
- upgrade, maintenance and construction of fire trails; and
- fire hazard reduction programs.

Examples of NPA-funded Climate Change Projects

- The University of Melbourne is currently undertaking the Victorian Bushfire Weather Climatology Project. The outcome of this two-year project, currently in its second year, will be a proactive understanding of climate change impacts on fire regimes in Victoria. It will be achieved through an analysis of historical weather data for Victoria and examination of drought periods, fire danger conditions and bushfire weather events. The total cost is \$680,000. The Government is providing \$136,000 in 2011–12; and has given approval for a further \$34,000 in 2012–13.
- The New South Wales Office of Environment and Heritage and the Department of Premier and Cabinet are producing the New South Wales Regional Climate Model, a project to estimate the climate change induced changes to rainfall and runoff in NSW. The project will produce a methodology and tools to utilise the NSW/ACT Regional Climate Model to determine the impacts of climate change on extreme rainfall events. This would enable local authorities to model the impacts of climate change on flooding better. The total cost is \$80,000. The Government is providing \$15,000 in 2011–12; and has given approval for a further \$50,000 in 2012–13.

3. Natural Disaster Relief and Recovery Arrangements

3.1. Relevant Questions from Productivity Commission Issues Paper

- *Are current relief payments, such as those funded through the Natural Disaster Relief and Recovery Arrangements appropriate?*

3.2. The policy setting

Under the Natural Disaster Relief and Recovery Arrangements (NDRRA), assistance is provided to alleviate the financial burden on States and Territories and to support the provision of urgent financial assistance to disaster affected communities. The Government recognises, however, that the States and Territories are best placed to determine the type and level of assistance and to administer relief and recovery measures adopted following natural disasters. The Government is committed to ensuring these arrangements continue to support efforts by jurisdictions to invest in mitigation and resilience measures.

NDRRA relief measures fall into four categories:

1. Category A provides assistance to individuals, such as emergency food, clothing, shelter and accommodation, repairs to homes to make them habitable, and financial and personal

counselling. Category A also provides for evacuations, recovery centres and counter-disaster operations of direct assistance individuals.

2. Category B provides assistance for the restoration or replacement of essential public assets owned by a State or local government, such as roads, schools and bridges. Category B also provides for concessional interest rate loans, interest rate subsidies, freight subsidies and grants. Category B covers certain counter disaster operations for the protection of the general public such as sandbagging and temporary levees. Betterment is an option under Category B and allows for the restoration of damaged essential public assets to a more disaster resilient standard.
3. Category C provides for the establishment of a community recovery package, which may comprise a community recovery fund, recovery grants for small businesses and/or recovery grants for primary producers. While Category C requires the authority of the Prime Minister to activate, the NDRRA Determination clearly sets out the level and type of assistance to be provided, as well as the circumstances in which it is provided.
4. Category D is intended for more severe events where there is a dire need for assistance beyond the scope of scale of the standard suite of measures available. Category D cost sharing agreements are made entirely at the discretion of the Government. They are not limited by criteria to guide decisions about expenditure and do not set precedents.

The Government's expenditure on the NDRRA for 2010–11 was over \$2.7 billion.

A copy of the current NDRRA Determination can be found on the Australian Emergency Management website at www.em.gov.au.

3.3. Work currently underway and how the work contributes to climate change adaptation

- *Are current relief payments, such as those funded through the Natural Disaster Relief and Recovery Arrangements appropriate?*

The majority of current relief payments provided following a natural disaster fall under specific categories of the NDRRA. Some of the categories of NDRRA relate to both relief and recovery measures. The NDRRA creates arrangements for cost sharing between the Government and State and Territory governments. By way of the NDRRA Determination, the Government sets out terms and conditions for the provision of financial assistance to the States and Territories for the purposes of natural disaster relief and recovery. The Government has authority to amend the NDRRA Determination from time to time to reflect policy changes.

Climate change adaptation is defined by the Productivity Commission as "action by households, firms, other organisations and governments to respond to the impacts of climate change that cannot be avoided through climate change mitigation efforts".⁵ Through the mitigation obligations in the

⁵ Issues Paper at 27.

NDRRA Determination, the Government requires the States to take necessary action to minimise the impacts of increases in extreme weather events. In addition, the betterment provisions in the NDRRA provide another avenue through which the Government encourages climate change adaptation in the context of disaster management. Betterment refers to the process of rebuilding damaged public infrastructure to a more disaster resilient standard. Under the current betterment provisions in the NDRRA, States can claim reimbursement of costs associated with increasing the disaster resilience of damaged assets. These provisions support mitigation action by State and local governments to prepare for the future impacts of more frequent and extreme natural disasters associated with climate change.

3.4. Policy challenges or barriers that relate to climate change adaptation

Under the NDRRA, the Commonwealth provides the States with 50% or 75% reimbursement of certain costs, subject to thresholds being reached, including 75% reimbursement for costs above 0.4% of a state's annual revenue. As such, the Commonwealth can be seen as the States' insurer of last resort. While the NDRRA provides an important safety-net for the states to meet the costs of more severe disaster seasons, like drought assistance, arrangements of this nature have the potential to create a moral hazard by inadvertently providing disincentives to invest in insurance or other forms of risk mitigation. Recognising this potential, the Government amended the NDRRA Determination in March 2011 to include new requirements for States and Territories to have adequate access to capital to meet recovery costs and to demonstrate the cost effectiveness of their insurance arrangements.

Through consultation with the States and Territories, the Government has identified a need for consideration of a range of reforms to the NDRRA aimed at better reflecting the primary responsibility of the States and Territories to manage natural disasters and undertake mitigation measures. This approach would be intended to counterbalance any disincentives within the NDRRA for States and Territories to undertake appropriate mitigation measures.

3.5. Future work planned

Consistent with the National Strategy for Disaster Resilience, the Government will continue to engage the States and Territories in consideration of reforms to current arrangements to address the need for the investment of effort and resources in disaster mitigation at the national level. This may involve future work to develop and undertake longer term reforms to the NDRRA. This approach would be intended to counterbalance any disincentives within the NDRRA for States and Territories to undertake mitigation measures.

4. The Critical Infrastructure Resilience Strategy

4.1. Relevant Questions from Productivity Commission Issues Paper

- *How might regulation covering network infrastructure affect how infrastructure owners adapt to the impacts of climate change — for example, by discouraging investments in infrastructure upgrades or strategies that give them greater flexibility to adapt? What would be the costs and benefits to any changes to existing regulations?*
- *How can uncertainty be addressed in the context of adaptation to climate change?*
- *How might regulation covering network infrastructure affect how infrastructure owners adapt to the impacts of climate change — for example, by discouraging investments in infrastructure upgrades or strategies that give them greater flexibility to adapt? What would be the costs and benefits of any changes to existing regulations?*

4.2. Policy Setting

The Attorney-General's Department is currently leading a significant body of work aimed at ensuring the resilience of Australia's critical infrastructure. Critical infrastructure (CI) is defined by the Australian, State and Territory governments as:

those physical facilities, supply chains, information technologies and communications networks which, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact on the social or economic wellbeing of the nation or affect Australia's ability to conduct national defence and ensure national security

The Australian Government's Critical Infrastructure Resilience (CIR) Strategy (the Strategy) was launched by the Attorney-General on 30 June 2010. The Strategy encourages CI owners and operators to better manage both foreseeable and unforeseen or unexpected risks to their assets, supply chains, and networks.

The CIR is available via the Attorney-General's Department's website at www.ag.gov.au.

The Government's policy aim with this body of work is the continued operation of CI in the face of all hazards, and the continuity of essential services to other business, governments and the community. Climate change is one of the hazards addressed by the all hazards approach. It also potentially impacts on the timing and nature of risks faced by the owners and operators of CI.

The Government's Approach to CI Regulation

The Government has a complex set of roles, responsibilities and interests in relation to CIR. These include, among others, being an owner and operator of CI, the primary source of security threat assessments, and a source of research, scientific and technical advice relevant to the protection and resilience of CI.

However, a significant proportion of Australia's CI is owned or operated on a commercial basis. Accordingly, the Government recognises that the best way to enhance the resilience of CI is to

partner with owners and operators to share information, raise the awareness of dependencies and vulnerabilities, and facilitate collaboration to address any impediments. The Strategy also contains a suite of initiatives and activities involving engagement with CI stakeholders. These range from the development of guidance materials, through to the conduct of exercises.

Wherever possible, the Government takes a non-regulatory approach to CI. This approach recognises that in most cases the owners and operators of CI are best placed to manage risks to their operations and determine the most appropriate mitigation strategies. This has proven to be an effective approach and may be an appropriate model to adopt in progressing climate change adaptation initiatives.

4.3. Current Work

TISN

The Government has established the Trusted Information Sharing Network (TISN) for CIR as its primary mechanism to build a partnership approach between business and governments. The TISN is a forum in which the owners and operators of CI work together with governments and share information on threats and vulnerabilities, and develop strategies and solutions to mitigate risk.

The TISN incorporates seven sector groups and two expert advisory groups. The sector groups consist of critical infrastructure owners and operators from the banking and finance, food and grocery, transport, communications, water services, energy, and health sectors. The two expert advisory groups are the Information Technology Security Expert Advisory Group and the Resilience Expert Advisory Group.

The TISN provides relevant business and government representatives an opportunity to raise awareness of risks to critical infrastructure, share information and techniques required to assess and mitigate risks, and build resilience capacity within organisations. An important aspect of TISN sector groups is that members can share information within a confidential environment provided the topics of discussion do not contravene competition laws.

Through the TISN critical infrastructure owners and operators partner with governments to build and enhance the resilience of the services they provide to the community. The TISN operates on an 'all-hazards basis', exploring a wide-range of risks and threats, including climate change, to the continued operation of critical infrastructure. Through the TISN critical infrastructure owners and operators have shared information on strategies and measures to mitigate and adapt to the effects of climate change.

Adaptation to climate change is a key strategic issue for the sector groups encompassed by the TISN. The TISN can be used to bring together relevant industry and government stakeholders, as well as source authoritative and relevant information to provide CI organisations with valuable sectoral and cross-sectoral context in which to place climate change. This information can be used by TISN sector group members to inform key operational decisions at the organisation level to enhance an organisation's resilience and adapt more appropriately to climate change challenges.

A Climate Change Adaptation Community of Interest (Col) has also been established under the auspices of the TISN. The Col was launched by the Attorney-General on 28 September 2009. At the launch, the Chairs of the Critical Infrastructure Advisory Council were briefed by the Department of Climate Change and Energy Efficiency on upcoming climate change initiatives. The Col has subsequently been used as an information sharing mechanism between the Government and Col members.

CIPMA

The Critical Infrastructure Program for Modelling and Analysis (CIPMA) is a national security initiative that contributes to a whole of government approach to enhance the resilience of Australia's CI.

CIPMA works in partnership with relevant Government agencies, States and Territories, and business to provide support for decision making in CI resilience, counter-terrorism and emergency management.

CIPMA aims to improve the understanding of vulnerabilities in CI networks, key dependencies between sectors, and the impacts of CI disruptions or failures, whether caused naturally or by humans. Owners and operators of CI can use this information to prepare, prevent, respond to or recover from an adverse event. CIPMA also helps governments shape their policies on national security and CI resilience.

CIPMA Capability

The CIPMA capability includes a series of 'impact models' to analyse the effects of a disruption to CI services. The impact models assess the flow-on effects of a CI service disruption within and across sectors, how the economy and population will be affected, how long the disruption is likely to last, the area affected, and how the various infrastructure systems will behave as a result of the service interruption.

Specifically, CIPMA can:

- identify connections between CI nodes and facilities within sectors and across sectors
- provide insights into the behaviour of complex networks
- analyse relationships and dependencies
- examine the flow-on effects of infrastructure failure
- identify choke points, single points of failure, and other vulnerabilities
- assess various options for investment in security measures, and
- test mitigation strategies and business continuity plans.

Working with stakeholders

The successful development of CIPMA is the result of an excellent partnership with a range of stakeholders, including the owners and operators of CI, State and Territory governments, and Government agencies.

A major reason for the establishment of CIPMA was to address a perceived market failure in relation to the information available on the interdependencies between CI networks. Without this information, CI owners and operators would not be able to assess comprehensively their risks from

disaster events, leading to inadequate contingency planning and under-investment in risk mitigation measures.

CIPMA enjoys strong support from the TISN with five sectors currently engaged: banking and finance, communications, energy, water and transport.

4.4. Policy challenges or barriers that relate to climate change adaptation

Organisations that are CIPMA's stakeholders typically have to comply with regulatory arrangements relating to pricing and safety issues. The regulatory bodies tend to work on timeframes of about five years, which in the context of gradual environmental change is a significantly short term perspective. In these circumstances, it is often difficult for the owners and operators of CI to mount convincing arguments that their assets should be changed (eg, hardened, made more secure, physically isolated), moved or duplicated so as to provide adequate security of supply through justifiable investments in redundancy. With sufficient information, it should be possible to argue for the "betterment" of infrastructure (see pages 9 and 10 for explanation of betterment).

The key issue for a business is to determine what to do before the impact of an extreme event. In addition, the regulators need to be made aware of the need to accommodate potential hazards and the most appropriate means to do so. A staged approach based on options theory provides the benefits of infrastructure flexibility without unnecessary costs. It involves incremental investments which can be tailored to meet the currently anticipated impacts, while not preventing changes to the level of investment as further information becomes available. In this way large, irreversible and potentially ineffective investments may be largely avoided.

CIPMA's role is to provide information to its stakeholder organisations which is not commercially available. From our experience, most organisations have a poor understanding of the potential impacts of climate change on their business. It is not that they do not always understand the science, but that their perceptions are constrained to their immediate circumstances—often limited to their immediate site and location. CIPMA can provide valuable insights into dependencies and interdependencies which affect the vulnerability of their infrastructure and they can thereby take steps to adapt their operations. In this way CIPMA addresses a major information failure.

CIPMA Modelling and Analysis of Climate Change

CIPMA is capable of assessing the potential exposure of an infrastructure network and its dependencies on water, gas, electricity, transport and telecommunications to sea level rise, coastal recession, bushfire, and storm wind hazards.

Initially, this would involve the collection of readily available information and its analysis to inform more detailed and accurate hazard analysis of the areas of specific interest.

For example, the hazard scenarios that could be assessed might include:

- inundation caused by sea level rise of 0.9 m
- coastal recession associated with an effective sea level rise of 1.1 m

- bushfire—intensity not less than 10,000 kW/m, ember density not less than 2.5 m², for assets situated on bushfire-prone land, and
- storm wind not less than 162 km/h (damage threshold).

CIPMA would then produce hazard maps describing the areas of greatest exposure across the infrastructure network, and digital data representing the hazards and asset level exposure. The digital data would allow the infrastructure owner to investigate areas of interest in more depth. Asset exposure data allows for any asset within the network to be further interrogated to identify exposure at that site. The owner can review the outputs and engage its business units in determining their climate change mapping needs; and thereby build internal capability when making infrastructure decisions.

The second step would be to examine cross-sector dependencies such as electricity and telecommunications infrastructure, for a nominated set of assets, and the exposure of that infrastructure to the same hazard events assessed in the initial stage.

The analysis could consist of identification of asset dependencies on electricity zone substations or telecommunication exchanges (for supervisory control and data acquisition (SCADA) connected sites); and analysis of direct and indirect exposure to specified hazards.

CIPMA could then produce:

- a series of maps highlighting the exposure of the nominated assets to hazards that result from their dependencies on electricity and telecommunications
- a series of schematic diagrams detailing the interconnections between water, electricity and telecommunications and their hazard exposure
- a spatial dataset and data table that can be interrogated, and
- a written assessment of the analysis.

Given that interdependency analysis is reliant on data provided by other organisations, CIPMA can also produce outputs for the third party data providers relating to the asset data they have supplied:

- maps highlighting the exposure to the assessed hazards of each their assets, and
- digital data of the hard copy maps, and a data table including the hazard exposure values for each of their assets.

CIPMA would also be in a position to provide modelling work undertaken as part of this type of project to other Australian, State and local government agencies to assist their climate change adaptation decision making.

Sixteen tasks have been completed since the move to the operational phase in mid-2008, including a cyclone event in Queensland, a gas supply disruption on the North West Shelf, three port disruption scenarios, a simultaneous coal/gas outage in Victoria and South Australia, a broadcast sector desktop exercise, banking and finance dependency analysis and a submarine cable disruption.

4.5. Future work planned

The immediate strategic priorities for CIPMA are to: increase the geographic and sectoral coverage of the CIPMA capability by building on existing data holdings and acquiring new high level data to

establish a broad national geographic information system (GIS) CI database; continue with existing project work to develop transport sector coverage, with liquid fuels an immediate priority; enhance support to emergency management and response, including the Crisis Coordination Centre; and to seek additional cost recovery opportunities.

To expand the sectoral coverage of the CIPMA capability, the Department is now scoping the development of the National Critical Infrastructure Geospatial Database (NCIGD). An extensive consultation process with stakeholders and potential data providers is being developed, particularly with State and Territory agencies, to ensure that we gain the cooperation of key data providers.

In the future, CIPMA will be in a better position to deliver a range of tasks to the CI sectors in a more efficient and timely manner. This will be achieved by drawing on in-house technical resources, the Technical Services Panel and utilising technology and knowledge gained through bilateral and multilateral international cooperation activities. For instance, CIPMA is collaborating with the U.S. Department of Homeland Security under the AUS–US Critical Infrastructure Project Arrangement.

5. The Natural Disaster Insurance Review

5.1. Relevant Questions from Productivity Commission Issues Paper

- *Are any existing regulatory arrangements (including state-based insurance taxes and disaster recovery policies) impeding the efficient operation of the Australian insurance market, or reducing incentives to take up insurance?*
- *What kinds of government intervention, if any, would be most appropriate for addressing any market failures or regulatory barriers? What are the costs and benefits of these interventions?*
- *How well are Australian insurance markets coping with climate change and any associated uncertainties? What new insurance products might be developed by the market in response to climate change (for example, insurance for land values or insurance linked to weather indexes)? Would regulatory changes be required to accommodate these, or to improve the operation of the insurance market in a changing climate?*

5.2. Policy Setting

The Assistant Treasurer, the Hon Bill Shorten MP, commissioned the Natural Disaster Insurance Review (NDIR) on 4 March 2011. In the summer of 2010–11 many residents of Brisbane and Ipswich did not have flood insurance, and others thought that they had flood insurance when really they did not. When their homes or businesses were flooded, many of these uninsured residents suffered severe financial losses. This unfortunate state of affairs formed the background to the NDIR. One purpose of the NDIR was to explore the issues relating to the availability and affordability of insurance offered by the private insurance market, with particular reference to flood and other natural disasters.

Another purpose of the NDIR was to explore the ways in which communities can become more resilient and less dependent on government assistance in the face of natural disasters. Resilient

communities are better placed to face the risks associated with natural disasters, and to share the costs of the loss and damage resulting from them.

The Treasury has led the Government's response to the NDIR and is responsible for progressing the bulk of the NDIR's recommendations. The Attorney-General's Department is taking the lead on the development of the flood risk information portal to be hosted by Geoscience Australia and associated national flood mapping guidelines.

Copies of the NDIR are available at www.ndir.gov.au. The Government's response is available at www.treasury.gov.au.

5.3. Climate Change Adaptation

While there is an increased risk of extreme weather events due to climate change, it is not possible to predict individual events or to attribute them to climate change. The insurance industry has to deal with this increased risk and uncertainty. The policy challenge for the Government is to ensure that the community takes a holistic approach to adapting to the impact of climate change and does not rely on insurance as a single solution. As risk from extreme weather events and rising sea levels increases, insurance will not remain available and affordable unless risk is mitigated through better land use planning, appropriate adjustments to building standards and other measures directed at the long term structural adjustment that is considered appropriate as a result of climate change.

5.4. The NDIR Recommendations

The NDIR presented its final report to the Government on 30 September 2011. The report made 47 recommendations in four broad areas.

Twenty-seven of the recommendations related to mandatory flood insurance and the creation of a flood reinsurance pool. Because of their wide-ranging implications for insurers, policy-holders and the Government, the Government will consult further with relevant stakeholders about these recommendations in 2012.

Six of the recommendations related to the handling of claims and dispute resolution and asked the insurance industry to make amendments to the General Insurance Code of Practice. The Government has asked the industry to examine these recommendations and report back by the end of February 2012.

Five of the recommendations related to consumer awareness issues. The Government's response is outlined under 'Current and Future Work' below.

Finally, nine of the recommendations relate to specific, ad hoc issues.

5.5. The NDIR Recommendations and Questions from the Productivity Commission Issues Paper

- *Are any existing regulatory arrangements (including state-based insurance taxes and disaster recovery policies) impeding the efficient operation of the Australian insurance market, or reducing incentives to take up insurance?*

The Treasury led the Government's response to the NDIR recommendations.

The NDIR flagged that sometimes perceptions of poor claims handling practices have a negative impact on consumers' motivation to take out insurance. In this respect the NDIR recommended a number of changes to the General Insurance Code of Practice (the Code). For example, Recommendation 40 is that the Insurance Council of Australia repeal clauses 4.3 and 4.4 of the Code, so that claims arising from natural disasters are subject to the same minimum standards as other claims—including the four month time limit for determination on liability and the nature of the loss/damage with respect to the claim. The Government has asked the insurance industry to examine these recommendations and advise the Government of its response by the end of February.

The Government and insurance industry are discussing proposals to alter the Code to improve claims handling procedures and time frames.

- *What kinds of government intervention, if any, would be most appropriate for addressing any market failures or regulatory barriers? What are the costs and benefits of these interventions?*

The NDIR made a number of recommendations that would require government intervention in the insurance industry. For example, Recommendation 1 is that all home building insurance policies include flood cover. The costs and benefits of these recommendations are not yet clear and it remains unclear whether the level of intervention proposed by the NDIR would be appropriate for the Government. Accordingly, the Government will consider these recommendations as part of its broader consideration of the introduction of flood insurance pool and associated premium discounts following a consultation process in 2012.

The Government is also consulting on a proposal that all insurers must offer flood cover as part of home building and home contents insurance policies, while giving policyholders the option to 'opt out' of that cover.

- *How well are Australian insurance markets coping with climate change and any associated uncertainties? What new insurance products might be developed by the market in response to climate change (for example, insurance for land values or insurance linked to weather indexes)? Would regulatory changes be required to accommodate these, or to improve the operation of the insurance market in a changing climate?*

The NDIR Issues Paper noted the Australian insurance industry had the financial capacity and other resources to cope with recent extreme weather events such as the Queensland floods. However, the international reinsurance market has taken considerable losses from disaster events this year in Australia and elsewhere and, as a result, there is upward pressure on reinsurance premiums which will continue to flow through to insurance premiums.

The question of whether new products might be developed to address climate change was not addressed by the NDIR. The Treasury has advised that it is not aware of any current plans by the insurance industry to introduce new products in response to climate change.

5.6. Work Underway in Response to NDIR Recommendations

Initiatives led by the Assistant Treasurer

Standard Definition of 'Flood'

The Government will introduce a standard definition of 'flood' to be used in all home building and home contents insurance contracts (whether offered separately or in combined form) and contracts held by small business and strata title residences. Introduction of a standard definition of 'flood' will reduce consumer confusion regarding what is and what is not included in flood coverage, thereby potentially reducing the risk consumers will purchase cover that is not appropriate for their needs. It will avoid situations where neighbouring properties affected by the same inundation event receive different claims assessments because the policies covering them use different definitions of 'flood'. It will also improve consumers' ability to evaluate potential insurance policies and compare policies between different insurers.

One Page Key Facts Sheet

The Government will require insurers to provide consumers with a Key Facts Sheet for all home and contents policies. The Key Facts Sheet will clearly set out, on a single page, all key information about the features of the policy. It will complement the existing Product Disclosure Statement.

Lenders

The Government has opened a dialogue with lenders on the NDIR recommendation that they annually remind those who have borrowed to finance home purchases of their obligation to maintain insurance and of the risks of under-insurance.

Initiative led by the Minister for Emergency Management

Flood Risk Information Portal

The Government will establish a flood risk information portal, hosted by Geoscience Australia, to provide a single access point to flood mapping data. Initially, this will serve as a repository for existing flood mapping data. The project will be undertaken in close collaboration with State, Territory and local governments. The portal will be complemented by the development of national guidelines for the collection, comparability and reporting of flood risk information. The guidelines will contribute to an improvement of the quality and consistency of flood data over time. The Attorney-General's Department has the lead on the development of the portal and the guidelines.

Flood risk information plays an important role in emergency management, land use planning and environmental management as well as informing the setting of insurance premiums. Improved information will help communities plan for, and adapt to, the more frequent, and more severe, extreme weather events associated with climate change.