Australian Government

Australian Government response to the Senate Environment and Communications References Committee report:

Recent trends in and preparedness for extreme weather events

July 2015

Introduction

The Australian Government welcomes the Senate Environment and Communications References Committee's report on recent trends in and preparedness for extreme weather events. In its report, the Senate Committee notes the significant impacts and costs of extreme weather events on Australia, including the extensive damage they cause to Australian homes, infrastructure, businesses, natural ecosystems and human health. In 2011, Australia experienced an unprecedented number of natural disasters with total insured losses of around $12 billion. Since 2010-11, the Australian Government has paid approximately $7.9 billion to state governments to support natural disaster relief and recovery, and it is expected that a further $3.6 billion will be expended in relation to past events over the next three years.

Effectively preparing for extreme weather can reduce the impacts and costs of such events now and into the future. The Australian Government agrees with the Senate Committee that preparing for, and responding to, extreme weather events requires cooperation, collaboration and coordination across a range of sectors and governments. Businesses, the not-for-profit sector and individuals all have a stake and a role in responding to climate challenges, as do all tiers of government. For a resilient nation, members of the community need to understand their role in managing the impacts of extreme weather, and possess the relevant knowledge, skills and abilities to take appropriate action.

Other recommendations of the Senate Committee include: improving the forecasting of extreme weather events, especially early warning capabilities; removing disincentives to insurance; ensuring emergency service organisations work together effectively; and continuing to implement the recommendations of the recent Productivity Commission inquiry on the *Barriers to Effective Climate Change Adaptation* in Australia.

As outlined in the following sections of this response, the Australian Government is committed to a range of practical measures to help reduce the impact and cost of extreme weather events and to build resilience to climate risks. These measures include:

- continuing to implement the National Strategy for Disaster Resilience to guide disaster management decision-makers;
- establishing a Productivity Commission inquiry in April 2014 into natural disaster funding arrangements to examine expenditure on natural disaster mitigation and recovery, and options to achieve an effective and sustainable balance of disaster recovery and mitigation to build the resilience of communities;
- supporting the establishment of an Extreme Weather Desk in the Bureau of Meteorology's National Operational Centre to provide additional response capacity during extreme weather events;
- working with state, territory and local governments to continue to improve emergency management coordination; and
- a commitment to provide $9 million over three years to the National Climate Change Adaptation Research Facility (NCCARF) to integrate its research into decision-making by governments, businesses and households.

Detailed response to recommendations

The Australian Government has considered the ten recommendations made in the Senate Committee's report and provides the following responses.

Recommendation 1

2.115 The committee recommends that the Commonwealth government, through the Bureau of Meteorology and CSIRO, continues to support data collection and research to improve forecasting of extreme weather events, especially early warning capabilities.

Australian Government response: Agreed.

The Australian Government continues to support research into the improved forecasting and understanding of weather extremes and the development of early warning capabilities though the Bureau of Meteorology's observations program and the Collaboration for Australian Weather and Climate Research (CAWCR), which is a partnership between the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Bureau of Meteorology.

The Bureau of Meteorology collects and manages data relating to weather and climate elements through a robust and diverse observational network that includes radars, weather balloons, automated and non-automated instrumentation and volunteer observers. The Bureau of Meteorology is undertaking a strategic review of its observational infrastructure as part of its continuous improvement activities. A key consideration in this review is the capability for detection and monitoring of high-impact weather events, the robustness of the networks, and available technology.

In addition, the Bureau of Meteorology is investigating opportunities for research associated with the next generation geostationary meteorological weather satellite that has recently been launched by Japan, providing coverage over the Australian continent and the surrounding region. The potential for improvements to forecasting of extreme weather events will come from the increased frequency of data collection and improved remote sensing capability that will be delivered by the new geostationary meteorological weather satellite. This data will be used through the Bureau of Meteorology's existing forecasting models (and by forecasters other than the Bureau of Meteorology) and is anticipated to assist monitoring and forecasting.

The Bureau of Meteorology has a number of research commitments related to the goal of improved early warning of extreme weather events. These include the research investment in high resolution modelling through the Strategic Radar Enhancement Project, improved capability for forecasting tropical cyclone storm surges and improved prediction of flooding for both weather and hydrological modelling. The latter two activities are being implemented in response to the 2011 Munro Review of the Bureau of Meteorology's capacity to respond to future extreme weather and natural disaster events and to provide seasonal forecasting services.

The Bureau of Meteorology's research in advanced numerical modelling is using the Canberra National Computing Infrastructure research facility with a particular focus on very high resolution modelling – the finest scales being approximately 1.5 kilometres for weather forecast research and 400 metres for research into detailed processes associated with severe weather. The aim of the research is to improve the forecasting of significant weather, including severe thunderstorms, heavy rain leading to flooding, bushfire weather and tropical cyclones.

CSIRO and the Bureau of Meteorology will continue to work closely together on their joint research operation, the Collaboration for Australian Weather and Climate Research (CAWCR), to collaborate on data collection and research to improve forecasting of extreme weather events. The projection of extreme weather events is a relatively new area of research that includes significant challenges that stem from the coverage and quality of the observational record through to the development of skilful high-resolution modelling systems. As with general projections of future climate, there is currently greater skill in projecting changes in temperature extremes than there is in projecting changes in rainfall extremes, and this is likely to remain a research challenge for the next decade. CAWCR will continue to develop the Australian Community Climate and Earth System Simulator (ACCESS), to provide improved forecasting of extreme weather events in the near-term (days to weeks).

In addition, Geoscience Australia develops and provides datasets and services that support the delivery and improvement of forecasting of extreme weather events and early warning capabilities. For example, Geoscience Australia operates Sentinel, a national bushfire 'hotspot' mapping system that is used to alert operational agencies and the public to the presence of fires. Geoscience Australia collaborates with the Bureau of Meteorology on tsunami forecasts (through the Joint Australian Tsunami Warning Centre) as well as the development of a Geographic Information System of nationally consistent hydrological features (Geofabric). The Geofabric product is a publicly available resource that tracks how water is stored, transported and used through the landscape. Future versions will include jurisdictional data that will lead to higher resolution datasets. Geoscience Australia also develops information on natural disasters based on remote sensing observations. This is done for various types of disaster such as flood events while the event unfolds, as well as processing the available historical archive to generate a catalogue of information that may support warnings into the future.

Recommendation 2

2.117 The committee recommends that the Bureau of Meteorology and CSIRO continue to improve projections and forecasts of extreme weather events at a more local level.

Australian Government response: Agreed.

The Australian Government agrees on the need for improved projections and forecasts of extreme weather events at local scales, particularly in the context of early warning systems.

The Bureau of Meteorology is developing improved methodologies for the use of weather radar to measure rainfall and track the movement, evolution, and severity of thunderstorm cells. New approaches provide probabilities of exceeding critical rainfall thresholds or storms

impacting locations on the ground, both of which are useful for decision making and risk management to mitigate the impacts of extreme weather.
Continuing improvements in projections and forecasts of extreme weather events will depend on the Bureau of Meteorology's future supercomputing capacity, as well as optimal use of the international observing network and the Australian observations network, including the Bureau's weather radars. The 2014-15 Budget provided funding for the Bureau of Meteorology to replace its existing supercomputer, which will reach its expected end-of-life in mid-2016. The new supercomputer will be capable of providing more detailed forecasts more frequently, and will enable the Bureau of Meteorology to improve forecasting and warning capabilities. The new supercomputer and associated modelling and prediction systems will lead to improvements in forecasts of the location and timing of severe thunderstorms, the timing and direction of wind changes in bushfire situations and the intensity and location of rainfall leading to flooding. The Bureau will also have the capacity to produce more accurate forecasts of a tropical cyclone's path, intensity and structure, including the location and timing of coastal crosses.

The Bureau of Meteorology's Next Generation Forecast and Warning System has been rolled out across the country and underpins its graphical forecasts and seven-day predictions available for all locations in Australia. This has produced a step change in the Bureau's ability to provide local scale forecasts.

In response to the Munro Review of the Bureau of Meteorology's capacity to respond to extreme weather and natural disaster events and to provide seasonal forecasting services, the Australian Government has funded the establishment of a new Extreme Weather Desk in the Bureau's National Operational Centre. The Desk will provide a national focus for extreme weather intelligence and capability during periods of sustained demand. The Centre's expanded capability includes the development of new storm surge predictive capability and improved hydrological modelling to support flood forecasting.

Quantifying future risks associated with a changing and increasingly variable climate, especially at a regional scale in Australia, remains a high research priority for the Bureau of Meteorology and CSIRO, through the CAWCR partnership. This includes developing robust methods to "downscale" climate model projections from coarse to more fine space and time scales; and ways to improve predictions of the likely increased frequency and intensity of extreme events at increasingly finer scales. The collaborative research aims to strike the right balance between the drive for finer-scale resolution, and the uncertainty in projections at these small scales. Underpinning process-oriented research, that is processes based on observations and modelling, will be needed to reduce uncertainties and meet these demands.

Geoscience Australia's capability and outputs also contribute significantly to improvements in extreme weather event projection and forecasting. The quality of local forecasts and projections directly depend on the resolution and reliability of the inputs to the models that generate the projection or forecast. This data is part of the National Foundation Spatial Data Framework (led by the ANLIC - Spatial Information Council) that is defining key national datasets and policies around data distribution/licensing. Geoscience Australia is the custodian of selected national-scale and high-resolution digital elevation information. National scale data is available for open access and high resolution digital elevation data is accessible to all levels of government in Australia under Restricted for Government Use Only licencing. This data can be discovered and accessed through the National Elevation Data Framework (NEDF) Portal at http://nedf.ga.gov.au.

Geoscience Australia continues to develop its capability in modelling high-resolution projections of extreme weather events. Geoscience Australia's capability complements that of the Bureau of Meteorology as it projects the impacts of extreme weather events (such as extreme wind events) on the built environment.

Recommendation 3

2.119 The committee notes the linkage between climate change and extreme weather events and recommends that the Bureau of Meteorology and CSIRO conduct further research to increase understanding in the areas of:

- the interaction between large-scale natural variations, climate change and extreme weather events;
- the impacts of climate change on rainfall patterns and tropical cyclones; and
- that Australia cooperatively engage, where appropriate, with international research initiatives in these areas.

Australian Government response: Agreed.

Through CAWCR, CSIRO and the Bureau of Meteorology will continue to work closely together to improve understanding of the links between climate change and extreme weather events. This research will include:

- using models such as the Australian Community Climate and Earth System Simulator to simulate drivers of Australia's climate variability, and predict how these drivers may change in the future with increasing greenhouse gas concentrations; and
- providing projections of likely changes in the intensity and frequency of extreme events (heatwaves, bushfire weather, severe storms, droughts, tropical cyclones, storm surge, etc.) in the Australian region.

CSIRO and the Bureau of Meteorology are also committed to maintaining vibrant international collaboration to enhance scientific knowledge, build research capability, and have access to other nations' observations and programs. Key international collaborations include the Met Office in the United Kingdom and the National Oceanic and Atmospheric Administration in the United States of America.

Recommendation 4

3.60 The committee recommends that disincentives to insurance, such as taxes and levies applied by the states and territories, should be removed as part of a national reform process.

Australian Government response: Noted.

The Australian Government notes that the Committee's recommendation is in line with past reviews of the tax system and other inquiries including the *Report of the HIH Royal Commission* (2003), the *Australia as a Financial Centre Building on our Strengths* report by the Australian Financial Centre Forum (Johnson Review, 2009), and the Productivity

Commission's *Barriers to Effective Climate Change Adaptation* (2012) report, as well as its draft report into *Natural Disaster Funding Arrangements* (September 2014), all of which recommended the removal or abolition of state taxes on insurance.

State and territory governments are responsible for state and territory taxes and levies. The Government notes that the Australian Capital Territory Government is already phasing out insurance taxes over the five years from 2012-13 to 2016-17 and would welcome any early moves by other state and territory governments to lower the burden of insurance taxes.

The Government has committed to release a comprehensive white paper on tax reform before the next election. The first step in this process, a discussion paper, was released by the Treasurer on 30 March 2015. The discussion paper includes consideration of state taxes.

Recommendation 5

3.109 The committee recommends relevant authorities work with community service organisations in both planning responses to and responding to extreme weather events, in particular those organisations that provide vital services to vulnerable groups.

Australian Government response: Agreed.

The Australian Government recognises that communities and individuals who are vulnerable are disproportionately affected by extreme weather events due to their limited adaptive capacity. This limited adaptive capacity is generally associated with socio-economic disadvantage and geographic isolation, which expose vulnerable communities to direct and indirect climatic impacts to which they are unable to effectively prepare, respond and recover from.

Integral to the resilience of these communities are the community service organisations (CSOs) which build community resilience and provide support during and after disasters. Research demonstrates the importance of CSOs to helping communities recover after extreme weather events, and in supporting vulnerable community members to prepare for the impacts associated with extreme weather.

Improving the resilience of vulnerable sections of society is a priority for emergency management ministers nationally. This issue is being addressed with states and territories through the officials-level Australia-New Zealand Emergency Management Committee (ANZEMC), which is engaging with the Australian Council of Social Services, the Australian Red Cross and other potential partners to address this priority.

The Government maintains its role in supporting vulnerable community members through provision of a well-targeted social safety net, as delivered through the existing social welfare system.

Recommendation 6

4.104 The committee recommends that credible and reliable flood mapping activities and the

development of other information that would best inform landowners or prospective landowners of potential risks from extreme weather events are prioritised and used to inform land use planning laws.

Australian Government response: Agreed.

The Australian Government will continue to promote the dissemination of natural hazard information, including credible and reliable flood mapping.

Flood mapping and information provision

The Australian Government is working with state and territory governments to improve the availability and coordination of flood risk and other natural hazard information.

Geoscience Australia was allocated $12 million, over four years from July 2012, for the National Flood Risk Information Project (NFRIP). The Attorney-General's Department is the lead policy agency. NFRIP aims to improve the quality, availability and accessibility of flood information across Australia. NFRIP includes the development of an online portal, which will provide free access to authoritative flood studies and associated flood mapping data to enable users to undertake their own analysis of the likelihood of flooding at a given location. Centralising this information will make it easier for planners, the public, insurers and engineering consultants to find out what flood mapping information exists, and to undertake their own risk assessments.

The portal will be complemented by national guidelines which will improve the quality and consistency of future flood risk modelling and mapping. The Australian Rainfall and Runoff Guidelines published by Engineers Australia, which is the underpinning authoritative document used for the estimation of design flood characteristics, is also being revised.

Phase 1 of NFRIP was completed in November 2012 and included:

- an enhanced Australia Flood Studies Database, including an expansion of the search capability and direct access to an increased number of flood studies; and
- an initial set of maps for three trial areas showing observations of water over the last ten years, derived from satellite imagery.

Phase 2 of NFRIP was completed in November 2013. It delivered and pilot tested:

- further enhancements to the Australian Flood Studies Database to enable the display and download of flood mapping;
- publication of guidelines and standards related to data entry; and
- improvements to data entry and retrieval capabilities.

Phase 3 of NFRIP is currently underway and includes:

- portal infrastructure that enables access to flood information from multiple authoritative sources, including from the Australian Flood Studies Database;
- the completion of the derivation of water observations across the whole of Australia from satellite imagery from the national archive; and

- continuing the revision of the Australian Rainfall and Runoff (ARR) Guidelines.

Over the next few years, further enhancements will be made to the database. NFRIP will be finalised by June 2016.

Another relevant activity, which is being progressed through ANZEMC, is the National Work Program for Flood Mapping which will ensure that Australia has high quality, consistent and comparable flood risk maps to inform emergency management, public policy and community safety. The Work Program consists of four short-term and four long-term projects that will contribute to the generation of high quality, consistent and comparable flood risk maps to inform emergency management public policy, planning and community safety. The first four short-term projects were completed in 2012 and included nationally-agreed principles for flood mapping, as well as a gap analysis of existing flood maps. Projects currently underway include the development of guidance on how future flood modelling and mapping should be undertaken.

Land-use planning

The Australian Government recognises that the state and territory governments are primarily responsible for statutory land-use planning, with some responsibilities delegated to local governments. The Australian Government has worked through a number of inter-jurisdictional bodies to improve land-use planning.

For example, under ANZEMC, a Land Use Planning and Building Codes Taskforce was established in 2011 to reduce risk in the built environment, which is a strategic objective of the National Strategy for Disaster Resilience. The Taskforce has developed the Enhancing Disaster Resilience in the Built Environment Roadmap to implement this objective. All jurisdictions, including the Australian Government, are developing action plans to implement the Roadmap.

Recommendation 7

4.106 The committee recommends that building codes incorporate mitigation measures that take into account foreseeable risks from extreme weather events.

Australian Government response: Agreed.

Building codes form an important component in managing long-term risks from extreme weather events. However, the siting and location of a building plays a significant role in minimising or eliminating much of the potential risk before construction work commences. For example, building on a floodplain, in a bushfire prone area or on hilltops in cyclonic regions will affect the level of risk and associated additional construction costs in managing that risk. Accurate and timely information from planning authorities in relation to flood and bushfire risk is required as an essential prerequisite prior to building work commencing. Existing buildings continue to present the highest level of risk, but these buildings are outside the scope of current building codes unless being significantly modified.

In relation to cyclonic winds, buildings constructed within the last 30 years have been demonstrably more resilient to extreme weather events. Building standards are reviewed after major hazard events to ensure adequate levels of health and safety are maintained for the community. Cyclone Tracy, which hit Darwin on 25 December 1974, provided the foundation for more stringent building requirements in cyclonic regions.

More recently, the Australian Building Codes Board (ABCB) has undertaken reviews of building code requirements, including reviews of referenced "deemed-to-satisfy" standards, for the following extreme weather events:

- Cyclone Vance (22/3/1999);
- Canberra Bushfires (18-22/1/2003) – Review of bushfire standard AS3959;
- Cyclone Larry (20/3/2006);
- Victorian Bushfires (7/2/2009) – Further reviews of AS3959 and development and implementation of a new standard for private bushfire shelters, as well as working with the Victorian Fire Services Commissioner on developing a guide for the construction of community bushfire shelters. The ABCB also provided evidence to the 2009 Victorian Bushfires Royal Commission;
- 2010-11 Queensland Floods – Development and implementation of a standard and handbook for building in flood-prone areas. Previously there were no standards in the National Construction Code (NCC) for the design and construction of buildings in flood hazard areas; and
- Cyclone Yasi (3/2/11) – Standards for garage roller doors and tiled roofs made more stringent. The review also found that buildings constructed since 1983 better withstood the impact of Cyclone Yasi than older buildings.

ABCB has also investigated the appropriateness of current cyclonic regions in the context of future extreme weather events. This included sensitivity analysis on the impact of increased severity of extreme weather events.

In April 2013, the ABCB hosted a roundtable between industry and government to discuss the adequacy of the NCC in relation to natural hazards, energy, water, material use and future weather events. The ABCB subsequently developed a discussion paper which was considered by the Board in November 2013. The paper was released in April 2014 for a twelve-week consultation period and the stakeholder responses informed the final paper. The final paper identified that most stakeholders considered the current NCC adequately covers most natural hazards affected by climate (i.e. bushfire, flood, cyclone and extreme wind). However, the paper also recommended that the ABCB should investigate the hazards of heatwaves and hail and if necessary, and subject to cost benefit analysis, consider whether they should be addressed in the NCC or guideline material. The final paper is available on the ABCB website.

The ABCB is committed to comprehensively reviewing and considering the impacts of extreme weather events in relation to all new relevant regulatory initiatives and in consideration of a recommendation made by the Productivity Commission's report into *Barriers to Effective Climate Change Adaptation*, for the ABCB to monitor the effectiveness of standards to extreme weather events. The ABCB has robust impact assessment processes in

place to ensure that, in addressing any natural hazard mitigation and extreme future weather events, any new measures are proportional and can provide demonstrated benefits.

A regulation impact statement (RIS), in accordance with the COAG Best Practice Regulation, is required for all major changes to the NCC. The RIS details regulatory and non-regulatory options, identifying costs and benefits for each. Extensive public consultation is included in this process. Where relevant, sensitivity analysis for extreme weather events is included. The ABCB will continue to review the NCC as further evidence and information on extreme weather events becomes available.

ANZEMC's Land Use Planning and Building Codes Taskforce recognised the need for risk-based building codes for priority hazards in the Enhancing Disaster Resilience in the Built Environment Roadmap. All jurisdictions, including the Australian Government, are developing action plans to implement the Roadmap.

Recommendation 8

4.171 The committee recommends that Commonwealth, state and territory governments ensure that all facilities caring for vulnerable groups, in particular hospitals, schools, childcare and aged care facilities, have emergency management plans, relevant to their geographic settings, in place and regularly revised.

Australian Government response: Agreed in principle.

The Australian Government supports emergency preparedness and planning in a range of sectors that provide services for vulnerable groups.

Childcare

The care of children in formal types of care arrangements is regulated in order to ensure that they are protected from harm and that their opportunities for development are maximised. The majority of childcare services in Australia – long day care, family day care, outside school hours care and preschools/kindergartens – operate under the National Quality Framework (NQF). The NQF is underpinned by an applied law system which comprises the Education and Care Services National Law and the Education and Care Services National Regulations. The National Regulations provide details on the operational requirements for a childcare service, including a requirement to have emergency and evacuation procedures which set out: instructions for what must be done in the event of an emergency; and an emergency and evacuation floor plan.

Schools

While the Australian Government plays a collaborative role in education, it does not have a direct role in the administration or operation of schools, including matters with regard to emergency management plans for school facilities. This is a matter for specific schools and state and territory governments and non-government education authorities.

Acute care

State and territory governments are responsible for emergency preparedness, response and recovery in their jurisdictions. Hospitals and hospital networks administered by the states and territories have emergency plans and close links to local emergency services.

At an intergovernmental level, the Office of Health Protection, a division of the Australian Government Department of Health, takes a lead role in ensuring that health emergency planners can respond to any type of hazard impacting on the health of Australians or on the health system itself. This includes extreme weather events. The processes established under the National Health Emergency Response Arrangements provide a nationally-agreed emergency planning framework and a vehicle for nationally-coordinated responses to health emergencies, and for the health aspects of other emergencies.

Aged Care

Residential aged care service providers have an obligation to meet legislative requirements under *the Aged Care Act 1997* (the Act) in relation to risk management for emergency events. The Act and associated aged care principles provide the regulatory framework for Australian Government subsidised residential aged care providers and protection for people receiving aged care. The Australian Aged Care Quality Agency monitors approved providers of residential aged care homes against the Accreditation Standards.

The Australian Government's Department of Social Services supports residential aged care service providers to meet their responsibilities under the Act by providing advice to help them put in place adequate emergency management plans. In particular, providers are reminded of their responsibilities and the need to review their plans ahead of each high-risk season. Specific heat wave advice is also provided proximate to extreme heat events. Providers are encouraged to liaise with local emergency management agencies to ensure that their emergency management plans are appropriate to their location. The Department of Social Services works closely with state and territory health and emergency service agencies regarding emergency events that impact people receiving aged care.

Recommendation 9

5.61 The committee recommends that Australian governments specifically address issues of compatibility and capacity to facilitate the most effective interoperability of emergency service organisations and their key personnel, especially for fire services.

Australian Government response: Agreed.

Managing emergencies is largely the responsibility of state and territory governments, with local governments also playing a significant role. The Australian Government provides assistance and coordination in disasters that are beyond the capacity of a state or territory government to deal with effectively. State and territory governments have arrangements with each other to share resources when appropriate. The Australian Government, through the Attorney-General's Department (Emergency Management Australia), can assist states and territories with interstate deployments of resources, and provide a range of financial and non-financial assistance measures.

The Australian Government is supporting a number of initiatives which address and improve national interoperability. These are outlined below.

National Aerial Fire Fighting Arrangements

The National Aerial Firefighting Centre (NAFC) was formed by the states and territories, with the support of the Australian Government in July 2003. NAFC is responsible for the national coordination and sharing of aerial firefighting equipment between jurisdictions, ensuring that the type, timing and location of aircraft are managed to address the seasonal and/or immediate fire risk across Australia. NAFC is governed by a board of directors which is made up of fire and/or emergency management agencies heads from all states and territories.

The National Aerial Firefighting Arrangements encourage a cooperative national approach to the sharing of specialised resources. This enables states and territories to access specialist equipment, such as the high-capacity aircranes and Sikorsky S61N heavy lift helicopters that may otherwise be out of reach of individual jurisdictions. Aerial firefighting services sourced by NAFC are in addition to a range of other firefighting aircraft that states and territories provide independently.

The Australian Government contributes approximately $14 million a year towards this capability.

National Situational Awareness Tool

The Attorney-General's Department is coordinating a project to develop a consistent national-level geospatial situational awareness tool. The National Situational Awareness Tool (NSAT) will support federal, state and territory high-level decision-making and whole-of-government briefings in relation to emergencies and incidents in Australia. The NSAT is designed to enable sharing of geospatial data across all hazards between the Australian Government and states and territories.

The Australian Government Disaster Response Plan

The Australian Government Disaster Response Plan (COMDISPLAN) outlines the coordination arrangements for the provision of Australian Government non-financial assistance to states or territories in the event of a disaster where the jurisdiction's own resources are exhausted or unavailable. It is the primary mechanism for Australian states, territories and offshore territories to request official Australian Government non-financial assistance in an emergency or disaster. A review of COMDISPLAN was recently undertaken by the Attorney-General's Department and COMDISPLAN 2014 was approved and released in February 2014.

Australasian Fire and Emergency Service Authorities Council

The Attorney-General's Department is a member of the Australasian Fire and Emergency Service Authorities Council (AFAC). AFAC has been collaborating for over 20 years on industry views on a range of important matters and providing advice to various organisations, committees and stakeholders. As a long-standing peak body representing emergency management practitioners and technical experts, AFAC continues to champion emergency

management issues and influence positive change. AFAC's membership includes the Australian and New Zealand fire, land management and emergency service agencies, and also has close ties with disaster risk management organisations and fire and rescue services within the Pacific.

Emergency Management Assistance Teams

The Emergency Management Assistance Team (EMAT) capability is based on a diverse pool of experienced emergency management personnel who are able to rapidly deploy both domestically and internationally to support emergency management operations across all hazards. EMAT personnel are drawn from Australian jurisdictions and the Attorney-General's Department (Emergency Management Australia). EMAT has the capability to assist or augment emergency management, response and recovery planning and coordination of a requesting jurisdiction. EMAT also provides enhanced networking and development opportunities, increased operational awareness of state and territory arrangements and facilitates increased information sharing.

Harmonisation and standardisation of Bureau of Meteorology services

The Bureau of Meteorology works closely with state and territory agencies and a wide variety of organisations to deliver its products and services, including detailed fire weather forecasts and tailored flood forecasting services. The Munro Review found that there would be value in the Bureau having nationally consistent standards and arrangements with all jurisdictions on the services provided to emergency service organisations, especially during severe and extreme weather and flood events. ANZEMC agreed in October 2013 to establish a time-limited taskforce to address key aspects of the Australian Government's response to the Munro Review. The taskforce presented its final report to the Law, Crime and Community Safety Council (LCCSC) in May 2015 which outlined recommendations to harmonise and standardise the Bureau's services to emergency service organisations and maximise the benefits to the emergency services community. LCCSC Ministers agreed to the report's recommendations, which are now being implemented across jurisdictions.

Radiocommunications

All Australian governments agree on the need to improve radiocommunications interoperability. This position emerged from a Council of Australian Governments (COAG) agreement on 7 December 2009 which agreed a range of measures to improve natural disaster arrangements including the introduction of a national framework that will lead to improved radiocommunications interoperability in the emergency services sector. As directed by COAG, the National Coordinating Committee for Government Radiocommunications (NCCGR) has multijurisdictional responsibility for this task, including representing the views and needs of the state and territory public safety agencies. The Australian Government members of the NCCGR include the Attorney-General's Department, the Department of Defence, the Australian Federal Police and the Australian Communications and Media Authority.

On 21 November 2014, the Australian Government announced that the Productivity Commission had been engaged to conduct a cost benefit analysison the most effective means of delivering a mobile broadband capability to meet the long-term needs of Australia's public

safety agencies. The Productivity Commission commenced its analysis on 25 March 2015, with the Commission's final report expected to be released at the end of 2015.

Bushfire and Natural Hazards Cooperative Research Centre

The National Strategy for Disaster Resilience recognises the importance of research in building resilient communities and the benefits that focus, co-ordination and sharing of this nationwide effort can bring nationally.

The Australian Government is providing funding of $47 million over eight years for the Bushfire and Natural Hazards Cooperative Research Centre (which commenced on 1 July 2013). The entity ensures that the work of the Bushfire Cooperative Research Centre continues while developing complementary natural hazards research in other areas such as flood, earthquake, cyclone and tsunami events.

Common Alerting Protocol

The Common Alerting Protocol (CAP) is a standardised system that allows consistent and easy to understand emergency messages to be broadcast across a variety of communication systems. CAP can be used to alert and inform emergency response agencies, media and the general public. CAP ensures that messages remain consistent and clearly indicate to the recipient the severity of the threat and best response. CAP provides a template for effective warning messages based on best practices identified through academic research and real-world experience.

The Australian CAP Standard, released in May 2012, was developed using the National Standards Framework pathway. Governance through this pathway was provided by the Cross Jurisdictional Chief Information Officers Group with regular reporting provided to ANZEMC through the Capability Development Sub-Committee.

Recommendation 10

5.136 The committee recommends that the Commonwealth government works with state and territory governments to continue to implement the recommendations of the Productivity Commission report, where possible, to improve coordination in relation to climate change adaptation.

Australian Government response: Agreed in principle.

The Australian Government responded to the Productivity Commission report on *Barriers to Effective Climate Change Adaptation* on 14 March 2013. The Government response noted that recommendations 8.1 and 8.2 (both on local government), 9.1 (on land-use planning), 10.1 (on building regulation), 11.1 (on existing settlements) and 16.1 (on the role of insurance) were matters for state and territory government consideration.

Recommendation 13.1 of the report related to a proposed review of disaster prevention and recovery arrangements. On 28 April 2014, the Australian Government commissioned a Productivity Commission inquiry into natural disaster funding arrangements. The Productivity Commission was asked to examine the full scope of national expenditure on

natural disasters, and the effectiveness of current mitigation support arrangements. The Australian Government tabled the Commission's final report on 1 May 2015 and is consulting with states and territories on possible reforms.

Detailed response to additional recommendations

The Australian Government has considered the two additional recommendations made in the Senate Committee's report and provides the following responses.

Additional recommendation 1

That the Commonwealth Government protect communities from extreme weather by increasing expenditure on pre-disaster resilience to around $350 million a year. A National Resilience Advisory Group should be established to ensure supported projects are appropriately prioritised and targeted.

Australian Government response: Noted.

Under Australia's constitutional arrangements, state and territory governments have primary responsibility for emergency management and for the protection of life and property. However, the Australian Government supports state and territory work designed to enhance Australia's resilience to natural disasters through initiatives like the National Emergency Management Projects grants program and the Natural Disaster Resilience Program (NDRP). The Australian Government will contribute $52.2 million over two years from 2013-14 through the National Partnership Agreement on Natural Disaster Resilience to states and territories towards disaster resilience activities. The Australian Government is also providing $15 million over three years from 2014-15 to states and territories through the National Bushfire Mitigation Programme to implement long term bushfire mitigation strategies and better fuel reduction programmes.

The Productivity Commission inquiry into natural disaster funding arrangements will inform future decisions of the Australian Government on disaster resilience building programmes. The Australian Government tabled the Commission's final report on 1 May 2015 and is consulting with states and territories on possible reforms.

The Australian Government does not support the creation of a 'National Resilience Advisory Group' at this time as there are already collaborative arrangements in place. Due to the cross-cutting nature of emergency management policy, decision making occurs on a collaborative basis through national fora, primarily:

- COAG, comprising heads of governments;
- the Law, Crime and Community Safety Council, comprising emergency management ministers nationally;
- ANZEMC, comprising senior officials and chaired by the Secretary of the Australian Government's Attorney-General's Department; and
- at a working level, through ANZEMC sub-committees, including the following four permanent sub-committees:
    - the Capability Development Sub-committee;

- the Community Engagement Sub-committee;
- the Recovery Sub-committee; and
- the Risk Assessment, Measurement and Mitigation Sub-committee.

Additional recommendation 2

Maintain funding of the National Climate Change Adaptation Research Facility for a further five years.

Australian Government response: Agreed in principle.

NCCARF, hosted by Griffith University, has generated research into managing the risks associated with climate change impacts. In the 2014/15 Budget, the Government committed $9 million over three years to integrate NCCARF's research into decision-making by governments, businesses and households.