

Barriers to Effective Climate Change Adaptation:

Submission from the Department of Industry, Innovation, Science Research and Tertiary Education (DIIS RTE)

The Department of Industry, Innovation, Science Research and Tertiary Education (DIIS RTE) welcomes the opportunity to provide comment on the Productivity Commission's (Commission) draft report on the *Barriers to Effective Climate Change Adaptation*. The following submission is mostly concerned with chapter 8 of the report, however general comments on Chapters 3, 4, 10, 12 and 13 are also provided.

DIIS RTE's particular interest in Chapter 8 arises from our role in having policy responsibility for building regulation matters as they relate to the Australian Building Codes Board (ABCB). DIIS RTE officials provide secretariat support to the Building Ministers' Forum, coordinate elements of the COAG Business Regulation and Competition Working Group reform agenda involving the National Construction Code (Building Code of Australia (BCA) and Plumbing Code of Australia) and represent the Commonwealth on the ABCB.

DIIS RTE has some concerns in relation to Chapter 8, particularly with the Commission's analysis of the ABCB and the implication that climate change impacts have not been considered in the development of the Building Code of Australia (BCA). The key points we wish to emphasise in this submission are:

- The ABCB has and continues to consider climate change impacts when developing the BCA. For example the ABCB has:
 - commissioned an investigation into the impacts of climate change on the BCA;
 - included climate change modelling and anticipated impacts in recent regulatory impact statements; and
 - commissioned reviews into the impact of climate change on wind speeds in cyclonic regions.
- The sum of these reviews has found that the current BCA standards are adequate for anticipated climate change impacts for at least the next 40 years.
- Buildings designed and constructed to the BCA have a good record of successfully withstanding recent severe hazards, such as Cyclone Yasi (eg. 98% of roofs built according to the BCA survived the impact of Cyclone Yasi).
- The BCA is reviewed following major climatic events and adjustments are made as required. In addition, the BCA is constantly reviewed and updated annually to ensure it is appropriately addressing issues of safety, health, amenity and sustainability in the design, construction and performance of buildings.
- The ABCB acts in accordance with OBPR guidelines. Proposals to change the BCA based on climate change impacts were considered in a recent regulatory impact statement (RIS). The RIS found the proposals could not be justified by the cost-benefit analysis and this was cleared by the OBPR.
- Planning and building regulations are separate matters which should be treated as such. The BCA does not address planning issues and should not be held accountable for planning decisions.

8.1 Planning and Building Regulations are Based on a Static Climate

The report's approach of combining planning and building regulation matters in the key points and in some areas of the general discussion, leads to confusion over where action is required. The ability of the BCA and building regulations more broadly to contribute to the resilience of buildings is limited by appropriate land use planning controls to restrict or condition development in areas subject to high risk, such as flooding, extreme bushfire and storm surge. It is impractical for the BCA to require buildings to resist extreme weather events that would be better and more cost effectively addressed by using land use planning controls to restrict development in high risk areas.

The report could also benefit from recognising the differences between the ABCB and state and territory building regulations. The ABCB publishes the BCA and the state and territory building regulators implement and check compliance against the BCA. State and Territory regulators have the power to amend the BCA in their own jurisdictions based on climate geographical or geological factors and are responsible for an extensive range of issues outside of the ABCB's remit, including planning, flood and bushfire zoning, and building compliance.

The extent to which standards in the Building Code of Australia take into account climate change

In 2008 the ABCB began a number of investigations into the adequacy of current building standards to cope with anticipated climate change impacts. To date, the investigations have found that by and large, buildings designed and constructed in accordance with the current BCA are likely to be reasonably adequate for climate related hazards anticipated in 50 years time, which is the anticipated life expectancy of most buildings.

Standards in the current BCA are designed to ensure buildings can withstand climate related hazards such as cyclones and extreme winds, intense rain, bushfire, and to some extent flood. Buildings designed and constructed to the BCA have a good record of successfully withstanding recent severe hazards, such as Cyclone Yasi. The ABCB undertakes investigations following major climatic events and makes adjustments to the BCA as appropriate. This has resulted in changes being made to the BCA in the case of cyclones, floods, bushfires, and earthquakes. The ABCB is also proactive in responding to commissions of inquiry such as the recent Victorian Bush Fire Royal Commission inquiry.

Additionally, building standards undergo regular review to ensure adequate levels of safety and health are maintained for the community. Given buildings are usually expected to last 50 years, it is important that anticipated climate change is taken into account to ensure buildings can cope with future climate hazard events.

- COAG Best Practice Regulation Guidelines

The ABCB is a COAG standards writing body, and is governed by an intergovernmental agreement (IGA) signed by the Commonwealth, States and Territories. Under the IGA, the ABCB must make all decisions relevant to the NCC in accordance with COAG's best practice regulatory guide. The NCC is developed applying a risk management approach, consultative processes and cost/benefit analysis entirely consistent with COAG's agreed requirements for regulation making under the Office of Best Practice Regulation. All regulatory impact statements require OBPR clearance and the ABCB has a strong track record of obtaining OBPR clearance.

As the Commission noted in its report, *“the ABCB has reviewed the adequacy of current building code standards under climate change and has recently utilised climate change information in a review of the standards for buildings in cyclone-affected areas.”* However the Commission then goes on to state that *“this work has not resulted in any changes being made to the BCA to take into account climate change impacts.”*

No changes were made to the BCA because the review found that the changes would result in high upfront costs to the community which would not be recouped through financial benefits arising from improved wind load construction.

In the context of climate change, we believe that the ABCB's approach has been consistent with the Commission's own views that *“where measures have high up-front costs, there is likely to be a benefit to the community in deferring action until better information becomes available”* (p2, and recommendation 4.1).

The Commission has also stated that *“the COAG best practice guidelines are an appropriate tool to ensure that proposed reforms achieve net benefits. The Commission does not consider that adherence to these guidelines should preclude consideration of climate change impacts or would lead to the development of overly stringent regulations that would not be justified by cost-benefit analysis.”*

DIISRTE agrees with this statement and notes that the ABCB has acted in accordance with this advice. Climate change impacts were considered in the proposal to revise the NCC for construction in cyclone affected regions. The RIS specifically considered the risks posed by projections of cyclonic activity as indicated by climate change models. The RIS found that the proposals could not be justified by the cost-benefit analysis. Failure to observe COAG principles would lead to the development of overly stringent regulations that would not be justified by cost-benefit analysis.

Climate change impacts are accounted for in the ABCB's regulatory impact statements in accordance with COAG guidelines. The Commission may wish to give further consideration to whether the existing COAG guidelines and OBPR guidance needs to be reviewed to ensure that they sufficiently account for climate change adaptation. The Commission may also wish to consider issues such as the timeframe for calculating benefits and costs and the discount rate to be applied. These are overarching issues that have applicability across all forms of regulation making.

Towards an appropriate process for incorporating climate change impacts

The title of this section of the Commission's report presumes that the current process for incorporating climate change impacts into the BCA is not yet appropriate. This presumption is furthered by remarks by the Commission that:

1. the ABCB reviews have identified possible adaptation options but have not resulted in any changes (p155);
2. the ABCB has indicated that climate change predictions are incompatible with COAG best practice principles (p155);
3. a recent RIS on wind standards which found no net benefit in changing the BCA, provides evidence of ABCB's inability to harmonise climate change predictions with COAG principles (p155);
4. the recent RIS on wind standards was the first review of the BCA to utilise climate change projections (p155);
5. the BCA needs to be reformed to better reflect the likely changes in environmental hazards due to climate change (p 156);
6. increasing the stringency of the BCA will increase the well being of the community (156).

DIISRTE is of the view that the ABCB already has robust processes in place for incorporating climate change impacts into the BCA. The ABCB has been utilising climate change projections since it began reviews into climate change adaptation and the BCA in 2008. The key finding from the reviews is that there is no immediate need to substantially change the BCA. If the BCA were to incorporate the proposals it would result in costly, overly stringent regulations, which would not increase the net wellbeing of the community and are not justified by the research. However, a number of possible adaptation options were identified and the ABCB has addressed these and made changes. Further information on these projects can be found in the following section.

- ABCB review of the BCA under climate change

The ABCB began working with the Commonwealth Department of Climate Change in January 2008 to evaluate the robustness of the BCA provisions to the predicted changes in natural hazards due to climate change. Consultations with Geoscience Australia, CSIRO and the insurance sector were all part of this project. The Department of Climate Change jointly funded '*An Investigation of Possible Building Code of Australia (BCA) Adaptation Measures for Climate Change (2010)*.' This investigation found that there was no immediate need to change the BCA.

The key findings of the investigation were:

1. Buildings designed and constructed to the BCA have a good record of successfully withstanding severe climate related hazards.
2. The current BCA will generally provide a reasonable level of safety for new buildings under future low emissions climate change scenarios in the short to medium term. However, the latest climate change science indicates a high emissions scenario is likely in the medium to long term (2050-2100). Should this prove to be the case, the BCA will need to adapt in response to the high emissions scenario.

3. Whatever the case, additional research and more reliable data will be required on specific climate impacts, such as cyclonic events and intense rainfall, to ensure that standards can be reviewed to take account of longer term trends. This further work is required before BCA changes can be justified in accordance with the IGA and COAG Principles.

While the report found there is no urgent need to amend the BCA for future climate change impacts, it still identified opportunities to reduce the vulnerability of buildings when subjected to climate related hazards.¹

In light of these findings the ABCB embarked on a number of projects to address these possible adaptation options and to date has undertaken the following projects:

- Increased the minimum thermal performance and energy efficiency requirements for new buildings in the 2010 BCA as per the COAG endorsed National Strategy for Energy Efficiency.
- Investigated the damage to buildings as a result of Cyclone Yasi, and subsequently proposed changes to Australian standards for fixing of roof tiles, design of garage doors and design of sheds. This included work on AS 4505 Large Access Doors (including garage doors) which is proposed as a new standard for reference in NCC 2013, and revision of AS 2049 (roof tiles).
- Quantified storm water performance requirements, including the development of overflow provision for eave gutters.
- Developed a flood standard for inclusion in NCC 2013.
- Adopted a new bushfire standard and developed a new standard for private bushfire shelters.
- Investigated the impact of climate change on design wind speeds in cyclonic regions and subsequently development a regulatory impact statement on changes to cyclonic region boundaries taking climate change into account.

The Commission also noted in its report that it is unaware of any government response to the ABCB's review (p.155) and that the Building Ministers' Forum (BMF) should provide a formal response (p.160). As no major changes to the BCA were required and the reports were commissioned by the ABCB Office, a formal response by the BMF or the relevant COAG Climate Change Ministerial Council, was not required. The BMF only consider significant policy changes impacting on the ABCB or NCC. Should the Commission maintain its view that Building Ministers should formally respond to this review, this can be accommodated at a future BMF meeting.

¹ Suggestions for possible adaptation options to improve the resilience of buildings in for climate change included:

- improved thermal performance of the building shell by passive solar design to lessen the impact of higher temperatures without increasing the demand for air conditioning, and consider on-site energy generation to reduce reliance on mains power
- improved chain of fixings from roof to foundations, better bracing resistance and weathertightness to counter more intense cyclones and storm events
- increasing the capacity of valley and box gutters and improve detailing of roof and wall flashings to cope with increased rainfall intensity
- methods of collecting rainwater, reusing greywater, and reducing water use via more efficient plumbing fixtures to make buildings less vulnerable to reduced overall rainfall and increasing pressure on infrastructure
- avoid location in flood prone areas or use water resistant materials and locate vulnerable services above flood levels
- avoid location in extreme bushfire prone areas or design buildings in these areas to be more bushfire resistant
- consider the use of hail resistant materials in high risk areas.

- Box 8.13 Reviewing wind standards for climate change impacts

Building standards undergo constant review to ensure adequate levels of safety and health are maintained for the community. While climate change is anticipated to produce more intense tropical cyclones and storms and stronger winds and change the location of these risks, the strength of the wind and rainfall remains uncertain. Without definitive data on these factors it is difficult to establish the relevant technical building requirements that should be tested proportionate to the level of risk. Nonetheless the adequacy of BCA standards in cyclone prone areas has been subject to particular scrutiny.

Recent studies and regulatory impact analyses have utilised climate change information to review the adequacy of BCA standards in cyclone-affected areas. One of the Commission's key points (p 137) is that *"this work has not resulted in any changes being made to the Building Code of Australia to take into account climate change impacts."* The Commission goes on to add the fact *"that none of the amendments considered in the final regulation impact statement would likely deliver net benefits compared with the existing standards"* demonstrates the ABCB has *"difficulties amending the BCA to incorporate climate change impacts"* (p 155).

As previously discussed, the final RIS found that the proposals to change the BCA are not justified.

The ABCB Office considered the findings of the 2011 report on the *'Impact of Climate Change on Design Wind Speeds in Cyclonic Regions,'* the investigation into the impacts of Cyclone Yasi, and comments received on the consultation RIS, to produce a RIS for final decision. The RIS for final decision was cleared by the Office of Best Practice Regulation and found that all five proposals returned negative benefit-cost ratios.

8.2 The Timeliness of Regulation Review

The NCC is constantly reviewed and is updated annually. Regulatory changes are subject to regulatory impact analysis and public consultation as per the COAG guidelines. The Commission has cited the Victorian Bushfires Royal Commission (2010) findings in relation to mapping of bushfire risks and developing new bushfire standards as evidence of *"excessively long government review processes [which] could result in inefficient decisions and create a barrier to adaptation"* (p 159).

DIIS RTE would like to point out that the neither of these issues is the direct responsibility of the ABCB. Mapping of bushfire risks is a planning issue carried out by state and territory planning regulators, and is not covered by the BCA. Likewise, and the development of bushfire standards is the responsibility of Standards Australia, not the ABCB, and Standards Australia is not a Government body. The development of Standards is outside of the control of the ABCB and the Government more broadly. It is true that the ABCB takes an active role in assisting the development and review of Australian Standards referenced in the BCA, but does so within the framework administered by Standards Australia.

Draft Recommendation 8.2

As a priority, the Building Ministers' Forum should ensure that the National Construction Code and associated standards (including those developed by Standards Australia) take climate change impacts into account. As soon as practicable:

- the Building Ministers' Forum should provide a formal response to the Australian Building Codes Board's 2010 review of the Building Code of Australia under climate change*
- the Australian Building Codes Board should develop a formal work program that outlines its approach to incorporating climate change in the National Construction Code over time. This work program should reflect any formal government response to the 2010 review of the Building Code of Australia.*

The Australian Government should give consideration to the public funding requirements for the Australian Building Codes Board and Standards Australia to undertake this work.

DIIS RTE has concerns over this wording as we maintain the view that the NCC already takes climate change impacts into account. Several studies have been undertaken to ensure the NCC addressed the anticipated impacts of climate change.

As mentioned previously, the 2010 review found that buildings designed and constructed to the BCA have a good record of successfully withstanding severe climate related hazards, and that the current BCA is expected to cope reasonably well with future events that are anticipated to be slightly more severe.

To reiterate, the BMF is not required to provide formal responses to internal reports commissioned by the ABCB, especially when those reports find there is no substantive and immediate implications for BCA. However, should the Commission still believe that Building Ministers should formally consider and respond to this review then the Chair of the BMF can consider whether it should be included for discussion at a future BMF meeting.

The recommendation that the ABCB should develop a formal work program specifically for climate change implies that the current ABCB processes are inadequate and that climate change issues are not being properly addressed. The ABCB already has a formal work program and for the past 5 years it has included climate change adaptation activities. In addition, the impacts of climate change are sufficiently addressed in the current objectives of the 2012 IGA, via the inclusion of sustainability within the Board's mission, giving the Board scope to consider adaptation through existing ABCB processes.

The Commission has recommended that the Australian Government should give consideration to the public funding requirements for the ABCB and Standards Australia to undertake this work. It is worth noting that responsibility for funding any potential changes to NCC does not reside solely with the Australian Government. In fact, the Australian Government together with State and Territory (S&T) governments provide joint funding for the operation of the ABCB. Any additional funding would be contingent on a similar contribution from S&T governments.

Additional funding for the ABCB was recently considered as part of finalising the 2012 IGA and the Australian Government and State and Territory Governments doubled their funding contribution to the ABCB to assist the development of the National Construction Code. Government funding for the ABCB is usually determined when the IGA is renegotiated. The existing IGA is not scheduled to be reviewed until 2017.

Additionally the Commission's call for the Australian Government to fund associated standards development by Standards Australia has potential direct and indirect financial implications. Standards Australia is an independent organisation. The development of Australian Standards is complex involving the creation of multi-member technical committees with balanced representation, the use of various development pathways, and a consensual model of standards finalisation. Within this process, members of the relevant technical committees provide freely of their time, knowledge and expertise.

The justification for a consensual approach to standards development is to develop a standard which best matches the needs and values of society as a whole, and due to wide representation on a technical committee, endeavours to achieve broad community acceptance.

While it is an option under Standards Australia's development pathway to cater for the external funding of standards, it should be noted that the provision of external funding does not give the funding entity any preferential consideration in relation to the technical content and outcome of the standard. An additional consideration for governments and/or regulators is whether the provision of such funding sits appropriately within a consensually based model of standards development.

There are also important intellectual property and publishing issues associated with the development of Australian Standards and we believe the Commission has not fully considered these implications.

8.4 Interactions between Land-Use Planning and Building Regulation

Building Ministers and the ABCB have been striving for the roles of planning and building controls to be appropriately defined for many years. Local government planning approval processes have the capacity to undermine or override the BCA. The ABCB has sought state and territory assistance to reduce the scope for the inappropriate erosion of national consistency of building regulation by local governments through the planning approval processes. The IGA already provides scope for variations to be made across jurisdictions in order to account for regionally specific geological, geographical or climatic factors.

The ability of the BCA and building regulations more broadly to contribute to the resilience of buildings is limited by appropriate land use planning controls to restrict or condition development in areas subject to high risk, such as flooding, extreme bushfire and storm surge. It is impractical for the BCA to require buildings to resist extreme weather events that would be better and more cost effectively addressed by using land use planning controls to restrict development in high risk areas.

Conflating building and planning regulations has the risk of imposing excessive construction costs on all buildings, when planning requirements in specific areas could deter much of the damage at a far less cost.

DIIS RTE notes the concerns raised by the Housing Industry Association that the imposition of building regulations by local governments through their local planning instruments can lead to duplication and overlap in regulation. DIIS RTE agrees that this is an ongoing issue that needs to be resolved.

In reference to the Victorian Bushfires Royal Commission finding that building code bushfire-prone area maps did not match bushfire hazard maps used in the planning system, it is important to note that the building code referred to in this statement is the Victorian building regulations and not the Building Code of Australia. The BCA does not include “bushfire prone area maps” planning controls determine whether buildings can be constructed in areas subject to natural hazards.

DIIS RTE notes the findings in the Commission’s recent draft report, *The Role of Local Government as Regulator*, which supported ‘a gateway approach (similar to that used in Queensland and Victoria) to scrutinising building standards that are higher than those agreed through the Australian Building Codes Board or subjecting proposed standards to an independent cost-benefit assessment before their introduction.’

- Information Request 8.3

The Commission is seeking submissions on gaps or overlaps between land-use planning and building regulations that may act as barriers to adaptation.

As mentioned above, local government planning approval processes have the capacity to undermine the BCA and erode national consistency of building regulation. In addition, planning controls determine whether buildings can be constructed in areas subject to natural hazards, so even if the stringency levels were increased in BCA, these efforts are undermined if land use planning allows development in areas at risk such as high storm surge areas, or flood prone areas where the risk goes beyond the technical capacity of the BCA to provide a workable and cost effective solution.

For instance, it would be impractical for the BCA to require buildings in low lying coastal locations to resist loads resulting from a 5m storm surge and to prevent water entry into the building in a cost effective manner. The role of land use planning is critical in restricting development in such areas and should be the initial regulatory mechanism to evaluate the risk of climate change impacts. It is important to note that it may not be possible to overcome poor planning decisions by making changes through the BCA.

Chapter 3: Barriers to Effective Adaptation

The department is aware of the potential for certain market failures (as described in the draft report's Chapter Three) to reduce the prospect for business and industry and especially small businesses to be aware of the potential of climate change to affect the level and type of vulnerability they face. We welcome the reference in Chapter Three to the role of social and cultural influences on decision making which addresses the role of information and awareness in decision-making.

The department is engaged in several strands of activity relating to climate change and business resilience. One activity relates to improving the use by small businesses of business continuity planning to be better prepared to cope with natural disaster. This work is led by the Commonwealth and is one of the steps to implement the National Strategy for Disaster Resilience endorsed by COAG in February 2011 and carried out in a process overseen by the Commonwealth, state and territory National Emergency Management Committee.

We see benefit to a business operator of being aware of direct and indirect vulnerabilities stemming from risk of natural disaster as well as other sudden large shocks to business.

The resilience of the business community in the event of disaster, and most recent large scale disasters in Australia have been weather and climate related, is a part of the wider level of community resilience. The condition of the business community is a central factor in recovery from disaster. It has assets on hand locally, useful inventory or stocks, technical skills and built property which may sustain a crisis and be useful in recovery efforts.

Accordingly, draft recommendation 4.1 can imply that reducing barriers to effective risk management includes enhancing information about vulnerabilities, risks and mitigation measures for small business. The role for governments in this regard is to obtain, collate and make available information that is not easily available to the small business sector which describes potential threats and raises awareness of the need to prepare to face and deal with them. Chapter 6 on "Information Provision" also addresses the lack of information as a barrier to adaptation.

While there are relatively abundant sources of free BCP templates for small business, there are few, if any, free private sector information services that integrate local threat information (such risk of flood, fire, storm) with a call to action to create a BCP. There are weaknesses in public information about disaster preparedness especially concerning planning and operational issues. Advice on the physical preparation of buildings is well established and available from many sources. There is less attention given to the need to plan to deal with the indirect effects of a disaster. These include a disaster removing an out of region market or suppliers from a business and consequences of damage to infrastructure such as loss of trade from passing traffic or tourism.

We see the dominance of government agencies in data collection about climate change, disasters and socio-economic information as giving it the responsibility to

diffuse useful information to small businesses which cannot independently collect and assess this material.

In terms of the draft report's comment about behaviour change and its importance in removing barriers to attention to information and acting upon it, we are of the view that governments can and do link disaster information with preparedness behaviour and planning. This activity is low cost and may lead to increased self-help by businesses and householders and lower levels of repeated recovery support by governments.

Chapter 4: Assessing Reforms and Priorities

Chapter Four of the draft report identifies some policy responses to address barriers to adaptation. Our observation of small business sector shows:

- Sensitivity to cost of adaptive measures even to those linked to disaster;
- Shortage of time to undertake activity not reasonably linked to the business or home or family matters;
- Probable under-insurance against disasters due to either absence of policy cover or its expense;
- Lack of staff support to assist assess information about adaptation, align it with the firm's needs or outlook and act upon it.

Accordingly, we see a linkage between the draft report's discussion of 'real options' (p 72) and small business's generally weak ability to invest in preparedness. Free or low-cost BCP advice also needs to be made more credible, or indeed, real through advice being linked to local conditions. This approach complies with the report's observation that benefits exceed the costs if up front costs are low and if the change delivers perceived benefits under "a range of climate scenarios" (p 78).

Chapter 10: Emergency Management

The department has an interest in how emergency management arrangements including disaster recovery arrangements affect business and industry. The Natural Disaster Relief and Recovery Arrangements (NDRRA) provide a formula for, inter alia, assistance to small businesses through concessional loans and clean up grants. NDRRA also provides assistance to individuals including repair to housing and removal of debris. In a draft study being completed for the department using national survey data for 2007-11 collected by the Queensland University of Technology's Australian Centre for Entrepreneurship Research in its Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE), QUT reports that less than 20 percent of nascent businesses (defined as under 12 months with costs greater than revenues for six months) and young businesses (1-4 years of operation) have non-home, independent, separate locations for business. Well over 60 percent of the businesses surveyed are home-based.

NDRRA measures are of dual value to home-based small businesses. Should the government chose to review NDRRA measures as suggested in recommendation 10.1 (p 208) we would see there being a need for special consideration of the value that NDRRA provides to home owners and small businesses in the context of their

limitations to purchase disaster insurance and, if purchased, the speed of its payout to victims of disaster.

Chapter 12: The Role of Insurance

The report indicates that NDRRA and other policies may inhibit private risk management arrangements, notably through insurance. We are of the view that the report's discussion of insurance taxes and levies as a component of total cost of insurance (p 233) is a useful reflection of views passed to the department from time to time by small business operators.

As part of the work being done by the department on disaster and business insurance it is interested to obtain views from the insurance industry as to whether or not, in the absence of removal of insurance taxes and levies, discounts to premiums are possible for small business operators if they have an operating business continuity plan.

Chapter 13: Reform priorities

The report notes (p 246) roles of levels of government on provision and implicitly the co-ordination of information concerning hazard mapping and communicating this information to residents (and businesses). We see this activity as an essential step in developing public awareness of vulnerability and the basis on which to promote business continuity planning to small business operators.

We see there to be a real and existing overlap between household risk management issues and those facing small business and suggest that treatment of the two sectors in terms of disaster preparedness recognises this overlap.

Commonwealth, state and territory agencies engaged in provision of advice on climate adaptation, risk management and disaster preparedness to small business need to ensure that both emergency management organisation and economic or industry development agencies remain in liaison on these issues.