Barriers to Effective Climate Change Adaptation
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Dear Chairperson,

Inquiry into regulatory and policy barriers to effective climate change adaptation

Thank you for the opportunity to provide comment upon the regulatory and policy barriers to effective climate change adaptation. Much of the work of the organisation that I represent, the South East Councils Climate Change Alliance Inc (SECCCA), is in assisting our member councils plan and implement adaptation actions in response to climate change.

SECCCA is a collaboration of 8 councils to Melbourne's south and east. These comments are from SECCCA and do not necessarily represent the views of any member council. They are compiled as a result of many workshops, presentations, meetings and discussions in which SECCCA has been involved.

Much of SECCCA's work in coastal adaptation currently is informed by the findings of the project reported upon in People, Property and Places: Impacts of Climate Change on Human Settlements in the Western Port Region, June, 2008 (1) and in Impacts of Climate Change on Human Settlements in the Western Port Region: Climate Change Risks and Adaptations, released in October 2008 (2). These are reports from a project conducted by SECCCA (in its former guise of the WPGA) as one of five national integrated assessment projects, funded by the then Australian Greenhouse Office and Victoria's Department of Sustainability and Environment.

Through the project, CSIRO was commissioned to develop projections for likely climate change impacts with respect to sea level rise, storm surge, extreme rainfall, windiness and storms, average rainfall, average and extreme temperatures and fire weather in the Western Port region. Marsden Jacob Associates then applied the projections and assessed the impacts on the communities and the infrastructure on which they depend for the then 5 councils of the WPGA. Each council then conducted risk assessments to identify the high-priority risks that required them to respond. In the table below, the following risks were identified through these risk assessments, with risks 6, 8 and 10 not being relevant for a coastal context.

Table 1: Priority Climate Change Risks, Western Port Region

Risk	Risk description	Climate variable(s)
1	Uncertainty over or lack of planning controls in areas affected by coastal inundation and/or flooding	Sea level rise / intense rainfall
2	Loss or degradation of beaches and foreshore areas	Sea level rise / intense rainfall
3	Flooding of essential public infrastructure in low lying areas	Sea level rise / intense rainfall
4	Loss of road access due to coastal inundation and/or flooding	Sea level rise / intense rainfall
5	Increased flash flooding due to drainage system being overwhelmed	Intense rainfall
7	Increased community anxiety about climate change and loss of wellbeing, especially amongst vulnerable groups	Various
9	Loss of biodiversity, especially coastal and freshwater biodiversity	Various

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As a result of their involvement in this project, participating councils have spent some time considering the risks and realities of climate change for their region. They are now working through internal processes to plan their responses to these risks. Clearly, a number of responses will require the involvement of other levels of government.

The Productivity Commission is urged to use its powers of persuasion and every other resource at its disposal to see that all levels of government make their contribution in responding to this 'diabolical policy problem', as it was termed by Professor Ross Garnaut. Making specific recommendations for policy responses by state and national government based on the evidence received through this inquiry would help provide a context of greater certainty for local government.

Staff of SECCCA have been involved in many discussions in member councils about climate change risks in general, these identified risks in particular and issues faced across the wider community. The comments made here are in large part informed through these discussions.

Planning controls

Risk number 1 from the table above refers to planning controls in areas affected by coastal inundation and/or flooding and the uncertainty that surrounds this issue. Councils receive, on a daily basis, planning applications for coastal developments. The response that, because of uncertainty regarding the incidence and magnitude of future flooding events, decisions will have to wait is simply not available to councils – they have to make determinations on the applications when they receive them.

The response is simple, provide as much certainty as is possible – and this is the province of state government. State governments need to provide the legislative frameworks within which local government can operate planning systems. Just as the respective Catchment Management Authorities (in Victoria for example) might be responsible for advice regarding

overland flooding, there needs to a responsible referral authority for the risks that derive from coastal flooding, including sea level rise, storm tides and storm surges.

Beaches and foreshores

The second risk identified through the Impacts of Climate Change on Human Settlements in the Western Port Region: Climate Risks and Adaptations, October 2008 stems from loss or degradation of beaches and foreshore areas. Coasts have always been dynamic and beaches and foreshores are built up and they erode away yet our system of land tenure, use and management presupposes permanency. This assumption of permanency must be challenged and the community led to understand that coasts are dynamic and that retreat options, for example, are quite reasonable when circumstances change. .

We need a comprehensive program of community engagement to include communities in the discussions of the current state of knowledge, implications for coastal communities and the range of long term responses that are needed. This should include the understanding that we'll need to accept exposure to this risk to such an extent that in the short term we must accommodate to loss events and in the long term to consider that specific beaches and foreshore areas were a specific feature of a particular time. Coasts are dynamic, whatever we might wish.

In attempting to mitigate against loss or degradation of beaches and foreshore areas, engineering solutions must be considered in an integrated manner to reduce the possibility of simply transferring the risk elsewhere. A hard sea wall that caused a storm surge to back up would simply divert water, and the attendant risk, elsewhere. A sea wall containing a build-up of water might damage the fringing vegetation and bring about adverse biodiversity impacts. In the long term, accepting that land-use must change with circumstance and time will be essential. This acceptance will not happen easily and will need careful development over time.

Regardless of any actions we can take and solutions we implement, there is already some loss of public land through the inland creep of sea water. Further, there have been well publicised losses of private land in other states. There are also cases where planned developments have been prevented through projected climate change impacts, including coastal inundation from sea level rise and storm surges and tides. The policy implications of these losses and development denials are in the early stages of consideration now while the financial and legal liability implications are to come – and they assuredly will come soon.

A response from national and state governments, developed at a high-level and supported with appropriate research, is an absolute requirement. This should include the development of a set of regulatory or legal tools that might be available, economic modelling for the range of possible engineering responses and clear advice on the roles of responsible authorities.

Knowledge and capacity constraints

With regard to flooding and the threats to infrastructure, including roads and drainage systems, that are posed, the initial need is for precise information. Exactly where the water will go, at what rate, for how long and what substrates it will affect all have implications for protecting infrastructure.

In order to discharge their statutory role in planning, councils need to know precisely the conditions that apply at a single (and in this context coastal) property level. However, there are skills and capacity constraints within local government that limit their ability to play their role. Geomorphology, knowledge of coastal processes and vulnerability are generally areas outside of the expertise and experience of councils. Yet decisions made without consideration of the geo-morphological conditions and their interactions with coastal processes might not withstand challenge. Local governments need resource assistance to meet their statutory responsibilities in this or else other arrangements for such decisions must be made.

Community engagement

Many of the issues discussed above are framed within current community understanding of climate change, scientific and geographic knowledge, systems of land tenure and the provision of services within communities, to name just some of the applicable contexts. We need a comprehensive program of engagement to include communities in the discussions of the current state of knowledge, implications for coastal communities and the range of long term responses that are needed.

For example, in the study reported upon in People, Property and Places, up to 2,270 people are directly exposed to sea level rise and storm surge. The best response for them might simply be accommodation, it could be protection involving design and engineering responses or it could be retreat. It will most likely take a protracted period of serious contemplation of the issues and the options before these residents come willingly to a decision as to what to do. Without a major emergency such as the 2011 Brisbane floods which might increase preparedness to consider the full range of responses, a serious and comprehensive community engagement program delivered through a genuine partnership with those affected might help in opening the community mind for change. This engagement program should include an acceptance of the scientific modelling upon which the projected climate change impacts are based, financial models for evaluating the various options available and a preparedness to accept the Precautionary Principle as a basis for action.

Impact on biodiversity, especially coastal and freshwater biodiversity

Much of the work of SECCCA is place-based and relates to Western Port, a Ramsar site, a region subject to the China Australia Migratory Bird Agreement, the Japan Australia Migratory Bird Agreement and host to a UNESCO Biosphere Reserve. Comments here should be seen within this context.

The first step in responding to this risk is determining what loss is occurring and to which species and in which habitats. A number of discrete biodiversity projects have been conducted or are in progress (eg. Victoria University's Coastal Saltmarsh study, the Birds Australia/Central Coastal Board Western Port Welcomes Waterbirds project). These should be gathered into a comprehensive biodiversity assessment project to provide the benchmark to assist subsequent coastal planning and development decisions. Currently there is an insufficient research base to allow biotic factors to be considered in coastal planning, development and operations.

The Shapiro Report (3) released in 1974 provided a comprehensive base-line study of the Western Port environment. An updated study to allow a 'Shapiro' Report Mark 2 should be conducted to provide the base against which integrated decision-making can occur.

The thinking behind these comments can be applied more widely within Australia – unless there is a strong body of knowledge regarding climate change impacts upon biodiversity and the ecosystem services that are provided, the effectiveness of climate change adaptation responses will be compromised.

When the knowledge base has at least in part been established, management decisions, including the supporting policy and legislative frameworks, based upon a more comprehensive understanding of the environment, can be instituted. This might commence with a consideration of the operations of current relevant legislation, both national and state, as a means of ensuring an integrated approach to coastal zone management and identification of further needs.

Vulnerability Assessments

One response that member councils are making to planning applications in coastal precincts is to request the preparation of a Coastal Vulnerability Assessment (CVA). This is a means of alerting the proponent to issues that might pertain to their proposed development and a means of assuring council that the proposed development is taking into account hazards to

which it might be exposed. In the long term, the request that such an assessment be made could contribute to a shift in thinking to a willingness to accept some degree of personal responsibility for dealing with climate change impacts, that it will not always be the case that others (eg the government) will provide and that some planned actions are just not in one's long term interests.

With regard to knowledge and capacity constraints referred to above, the expertise within local government to evaluate the usefulness of CVAs cannot be assumed. This another area of resource need for local government.

Extreme weather events

SECCCA is involved in assisting member councils with adaptation responses to a number of climate change impacts other than coastal impacts.

SECCCA councils were directly affected by the 2009 Victorian bushfires, while a high wind event two years earlier resulted in electricity outages and considerable community disruption with damaged houses. Early in 2011, there were damaging floods in the Casey, Kingston and Cardinia councils. Each of these incidents pose problems for local governments and their frequency is expected to increase.

A prepared community is a more secure community and a forewarned community can implement measures to increase their safety. This presupposes triggers for the issuing of warnings of imminent extreme events, the effectiveness of a broadcast communication capacity to give these warnings and a range of available response options that can be deployed. Where are the heat shelters to which vulnerable people can be taken? What logistics issues are involved in taking them? Could they be safer if left in their homes – but can these homes be insulated and/or cooled? These are general research questions the findings of which need to be applied in local areas for optimum community safety. If local government is to implement these measures, how will the resource implications be met?

The 2009 Victorian Bushfires Royal Commission made a number of recommendations upon these matters. For example, Recommendation 3 reads as follows:

The State establish mechanisms for helping municipal councils to undertake local planning that tailors bushfire safety options to the needs of individual communities. In doing this planning, councils should:

- urgently develop for communities at risk of bushfire local plans that contain contingency options such as evacuation and shelter

- document in municipal emergency management plans and other relevant plans facilities where vulnerable people are likely to be situated—for example, aged care facilities, hospitals, schools and child care centres

- compile and maintain a list of vulnerable residents who need tailored advice of a recommendation to evacuate and provide this list to local police and anyone else with pre-arranged responsibility for helping vulnerable residents evacuate.

Support must be provided for local government such that this recommendation can be implemented.

Volunteers

Much of the emergency response for fires and floods for example, is delivered through volunteers. However, volunteerism can never be confused with amateurism. There must be recruitment of adequate numbers of volunteers, of a range of ages and importantly, a range of cultures such that all sectors can interact confidently within a context of understanding and mutual respect. Volunteers must receive appropriate training, re-skilling, refreshing and resourcing. It would be extremely counterproductive if a well-meaning but not fully competent

volunteer contributed to an adverse outcome and became subject to litigation. This is a strategic issue for Australia's adaptation response, volunteers have resource, including training, needs which must be met.

Building regulations

There are many interactions between the way in which we design and construct our housing and other buildings and climate change impacts. Large houses on small blocks of land have little room for shading trees and wide verandahs or awnings that reduce the amount of direct sunlight falling upon the house. Insulation is increasingly being used to a sufficient extent to maintain comfortable interior temperatures without recourse to air-conditioning in new houses, but older housing stock often needs air-conditioning, provided at a range of efficiencies and at costs sometimes beyond the reach of occupants. Where houses are leased, support for landlords in making the required capital investments for climate adaptations should be considered.

The amount of impervious surfaces in our suburbs is increasing. This exacerbates issues of water run-off in the increased incidence of short but heavy deluges that are projected. Localised flash flooding already poses problems for municipal authorities charged with installing and maintaining drainage systems. Principles of Water Sensitive Urban Design should be required for implementation for all developments.

The preparedness to use a range of regulatory measures to accompany incentives to promote climate adapted measures must be a component of the response.

Food security and land capability

In the regions served by SECCCA councils, urban encroachment is occurring onto land used currently for food production. In much of the area in question, the soil type is extremely flexible for growing a range of foods and there is secure access to vast quantities of Class A recycled water from a nearby water treatment plant. In short, the importance of this land and its capacity for intensive food production as climate change results in reduced average rainfall will only increase.

An audit of food requirements measured against capacity for production, for now and for intervals into the future, is needed to enable the development of appropriate land use policies.

Urban planning and the VAMPIRE Index

A research study conducted at Griffth University raised issues with the interactions of economic, social and environmental factors in urban planning. The report (4), which refers to what is named acronymically as the VAMPIRE Index (Vulnerability Assessment for Mortgage, Petroleum and Inflation Risks and Expenditure) sets out the unfortunate consequences of unplanned urban growth. It argues that transport fuel prices, coupled with employment needs and outer suburban living combine to place families in such areas under considerable financial hardship. The issues raised in this report must be considered as our cities swell to accommodate the increasing Australian population. Climate change impacts will exacerbate many of the problems of rampant growth. An informed national conversation on population policy, urban planning and resource consumption is needed.

SECCCA is pleased to offer the above comments and would welcome the opportunity to expand upon them if that would be helpful.

Yours sincerely

Greg Hunt
Executive Officer

References

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3 Shapiro, M.A.1975. *A preliminary report on the Westernport Bay Environmental Study* . Report for the period 1973 -1974. Ministry for Conservation. Melbourne.

4 2009 Victorian Bushfires Royal Commission, Final Report and Recommendations, July 2010
http://www.royalcommission.vic.gov.au/getdoc/5bc68f8a-a166-49bc-8893-e02f0c3b37ab/VBRC-Final-Report-Recommendations

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