

Barriers to Effective Climate Change Adaptation
Productivity Commission
LB2 Collins Street East
Melbourne Vic 8003



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SUSTAINABLE
PENINSULA



15 December, 2011

Dear Chairperson,

Inquiry into regulatory and policy barriers to effective climate change adaptation

Thank-you for the opportunity to provide comment on the regulatory and policy review of barriers to effective climate change adaptation.

The Mornington Peninsula Shire has been preparing for the potential impacts of climate change for over a decade.

Our approach has been driven by our Sustainable Peninsula Initiative, which was developed in conjunction with our community in 2001. The Initiative provides a framework that ensures we incorporate sustainability principles into our operations.

Key aspects to our approach to climate change have included reducing our greenhouse gas emissions (mitigation) as well as reducing our vulnerability to the potential effects of a changing climate (adaptation).

The key barriers to adaptation that we have identified are associated with a lack of policy and regulation, cultural and behaviour barriers and market failures. There is a need to further clarify roles and responsibilities at all levels of Government and who will pay for the different aspects of adaptation. Local Government is certainly in need of further resourcing to implement State and Federal Climate Change Policy.

The Shire's detailed submission is attached. Please note that it expresses the views of Council Officers not that of the Council. Shire officers would be happy to meet with the Productivity Commission to further discuss the issues raised.

Yours Sincerely,

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Mornington Peninsula Shire Submission Productivity Commission: Barriers to Effective Climate Change Adaptation

Background – About the Mornington Peninsula

The Mornington Peninsula Shire is located south east of Melbourne and covers approximately 720 square kilometres of land with a coastline that extends over 190 kilometres which is 10% of Victoria's coastline. The Shire has 40 settlements spread across the peninsula, with the majority of the residential population living along the coastline of Port Phillip Bay. The Shire has an estimated permanent resident population of 145,356 (2008). As a popular holiday destination the population can increase by 30% during the summer holiday period.

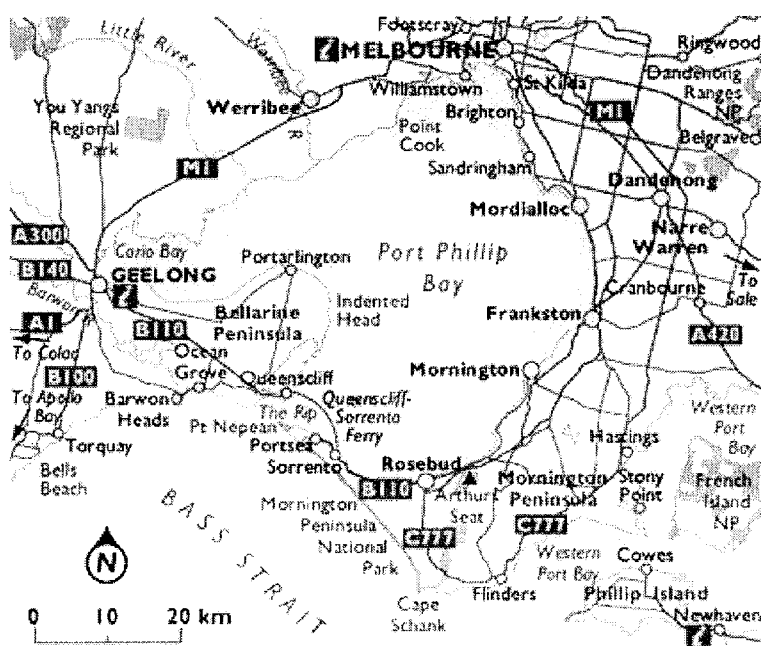


Figure 1: Mornington Peninsula Shire

Approximately 70% of the Shire is highly productive farm land as well as highly significant landscapes and ecosystems. The Mornington Peninsula and Western Port are also a part of the worldwide network of biosphere reserves recognised by the United Nations.

The Mornington Peninsula has a growing and diverse local economy that includes retail, manufacturing, construction, wine production and business services. Tourism is another significant contributor to the local economy, with the Peninsula being a popular weekend, recreation and holiday destination.

Our Approach to Climate Change

The Mornington Peninsula Shire has been preparing for the potential impacts of climate change for over a decade.

Our approach has been driven by our Sustainable Peninsula Initiative, which was developed in conjunction with our community in 2001. The Initiative provides a framework that ensures we incorporate sustainability principles into our operations.

Managing the potential impacts of climate change is one of our five key goal areas in our Community Plan and has been translated into a number of objectives in our Shire Strategic Plan.

Key aspects to our approach to climate change have included reducing our greenhouse gas emissions (mitigation) as well as reducing our vulnerability to the potential effects of a changing climate (adaptation).

In 2005 the Shire worked in conjunction with the Western Port Greenhouse Alliance (now South East Council Climate Change Alliance, SECCCA) to develop an initial understanding of our climate change risks. More detailed work was completed in 2008 in conjunction with SECCCA and CSIRO through funding from Federal (Department of Climate Change) and State (Department of Sustainability and Environment) Governments. The resulting report - *People, Property and Places: Impacts of Climate Change on Human Settlements in the Western Port Region*, identifies the potential climate change impacts on our region over the next 70 years.

A risk management framework was applied to determine the risks associated with the impacts identified in the report. Actions have and continue to be undertaken to reduce the key risks and leverage the key opportunities associated with climate change.

A summary of a number of the Shire's recent actions and commitments, against the key risks identified in the CSIRO report is provided below:

- **More frequent and Intense Storms.** The Shire has committed to spend \$30 million over 10 years to develop and implement a Local Integrated Drainage Strategy. The Strategy focuses on upgrades to the Shire's drainage system to better cope with the changes associated with Climate Change. The first aspect of this includes detailed modelling in key catchments (including modelling of climate change impacts including increased rain intensity in conjunction with sea level rise) and then identification and implementation of appropriate adaptation works.
- **An increase in the average number of high or extreme forest fire risk days.** The Shire has employed a Municipal Emergency Fire Co-ordinator (State funded) and increased its annual fire prevention works budget to \$2.2M (up \$1.5M). Planning controls have also been introduced in all fire prone areas.

- **Sea level rise.** Further modelling is required to better understand the impacts associated with sea level rise. The Shire is participating in the State Government's Future Coasts program and undertaking a detailed Coastal Vulnerability Assessment in Western Port in partnership with key stakeholders. It is also advocating for a similar project to occur in Port Phillip.

The Shire is also presently involved in two coastal adaptation decision pathways projects one in Port Phillip Bay, the other in Western Port Bay which have been funded by the Federal Government.

- **Increases in average temperature.** A Heatwave Plan is presently being developed across all Shire operations. This will complement the individualised action plans in place for elderly and disabled residents and the Shire's improvements to building thermal efficiencies.
- **Longer and more severe draughts.** Building on the outcomes already achieved for the Shire in water (60% reduction in potable water since 2002) an Integrated Water Management Strategy is presently being developed to guide water management policy. This will complement the large scale water recycling and stormwater re-use projects we have both developed and been partners to.

Mornington Peninsula Shire Submission

Productivity Commission: Barriers to Effective Climate Change Adaptation

The following commentary is provided in direct response to the content of the Productivity Commission's Public Enquiry into the Barriers to Effective Climate Change Adaptation. Only those sections of the Issues Paper relevant to Mornington Peninsula Shire, its activities and its communities have been included within this submission.

Determining Effective Adaptation

When assessing the effectiveness of adaptation it is important that policy is established that sets clear goals and objectives and clarifies roles and responsibilities. Appropriate resourcing (including financial) needs to be allocated to monitor the effectiveness of action. Benchmarking and monitoring of areas of risk and adaptation responses over time needs to occur against the set goals and objectives.

Effective adaptation needs to include adaptation that responds to the risk on the ground in a timely and well-considered manner.

The Discussion Paper highlights the issues associated with determining effective adaptation. The following examples of actions around adaptation that have worked well for the Shire are provided because of the short term outcomes they have already realised and the longer term benefits expected.

The examples were effective because there was clear policy direction, well defined roles and responsibilities, extensive stakeholder engagement, collaborative partnerships with resources (including costs) shared appropriately and the benefits were apparent.

Example one: Waste Water Recycling

To help prepare for periods of drought, the Shire has been involved in large waste water recycling projects which have been undertaken with the local water retailer (South East Water), food growers and local schools. In Mornington over 200 megalitres of waste water is being recycled per annum and in Boneo over 800 megalitres.

Example Two: Flood Mapping

Under the Shire's Local Integrated Drainage Strategy, flood mapping is being undertaken. This is occurring in conjunction with the state water body, Melbourne Water where there is joint responsibility for a catchment. The mapping includes scenarios that take into consideration climate change impacts, both increases in rain intensity (32% by 2100) and sea level rise (0.8 meters by 2100).

Example Three: Stakeholder Engagement

To further engage our community about the need for adaptation, in 2008 the Shire undertook a series of "conversations" with our community about the potential impacts of climate change. The conversations were based on the CSIRO report "*People, Property and Places: Impacts of Climate Change on Human Settlements in the Western Port Region*"¹.

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The sessions were considered extremely successful with over 3,000 residents in attendance. The Shire has responded to over 30 requests for additional presentations for Community groups and schools, which have engaged an additional 1,000 residents. Further information is provided in Appendix A.

General Barriers to Adaptation

The Shire recognises that climate change adaptation involves collaboration across the whole organisation. At the State and Federal level this translates to a whole-of-government response. At present, there is a feeling that Adaptation responses to climate change are occurring to some degree in an ad hoc manner and not in a joined-up way. This may be alleviated to some degree when the State releases its Climate Change Adaptation Action Plan. If left unattended, such an approach incurs unintended impacts. For example the setting of floor levels for flood-prone areas is leading to the disturbance of acid sulphate soils through changes to the water table due to the use of fill.

Where adaptation measures are being undertaken in some instances they are not being systematically applied across the State, nor are they being monitored. The State Government's requirement for Local Councils to ensure coastal planning applicants undertake a coastal vulnerability assessment and adapt their design in response to the assessment recommendations is one such example. It is also not clear what timeframe should be used when considering such matters. The lifecycle of a dwelling could range from 40 years or 100 years. What is a reasonable timeframe for Council to require the property owner to design for, particularly along the coast? And should different timeframes apply for different types of assets for example a hospital or school compared to a residential dwelling?

It is important to recognise the flow on effects to Local Council from decisions or lack of decisions or direction from the State and Federal Government. For instance, a lack of policy direction can result in a lack of clarity around roles and responsibilities and resourcing for adaptation works at the local level, thus creating a barrier to effective adaptation. It can also mean that regulatory responses are inconsistent and, in some instances, environmentally detrimental because social and economic objectives are being met in isolation and in some instances without consideration of ecological sensitivities.

It is also important that adaptation measures occur in a timely manner and are proactive rather than reactive. In large part, major reform to the planning system, amongst other emergency management systems, tends to be reactive to an incident when the call for action and political will is highest. For example, we have seen sweeping reforms to bushfire emergency response and planning systems in the wake of major Victorian incidents such as Ash Wednesday (1983) and Black Saturday (2009). Earlier reform may have resulted in a more considered approach to the issue with greater community understanding and support for its implementation.

Market Failures

The market's inability to price externalities particularly for natural systems services such as water, both potable and groundwater, has the potential to inhibit adaptation on the Peninsula. The Shire has scoped a number of large infrastructure projects for stormwater capture and re-use. Some of these projects have not gone ahead

because of the cheap price of potable water and free or minimal charge on groundwater usage. Consequently, the projects don't present a strong enough business case.

This also has an impact at the household level. Residents who participated in the Shire's Group Buy Scheme for rainwater tanks noted that the cost to run the pump for the tank is more expensive than the savings achieved by reducing the amount of potable water they use.

It is also important to note that the market model does not apply to public land and in particular to coastal Crown land in Victoria.

Long term certainty and consistency with government subsidies are needed to support investment decisions for business and individuals. For example, subsidised feed-in tariffs for solar power by government provided a quicker pay-back period to customers and grew the industry quickly with a larger number of people buying solar panels and consequently reducing the cost.

Inconsistencies between states on electricity feed-in tariffs and changes to the tariffs between States is creating investment uncertainty for business investment and customers when considering the pay back periods.

Behavioural Barriers

In 2008 the Shire undertook a series of "conversations" with our community about the potential impacts of climate change based on a report undertaken on the Western Port Bay Region - *People, Property and Places: Impacts of Climate Change on Human Settlements in the Western Port Region*¹. Of the 3,000 residents who attended the sessions, 1,600 responded to a survey that asked them to identify their key barriers to undertaking adaptation actions. The key barriers identified included: cost (42%); access to grants (23%); information (either too much or too little) (23%); and perceived changes to lifestyle (7%). The Shire developed a comprehensive engagement program in response to these identified barriers (further information is provided in Appendix A).

There have been a number of initiatives such as the application of water restrictions which have assisted in changing community behaviour. Where a net community benefit can be identified, these types of approaches are encouraged. In the instances where they help to create a norm within society consideration should be given to making temporary restrictions permanent.

During the peak of the drought in 2006, the Shire worked with its community to invest in a range of alternative water solutions. Together with State Government enforced water restrictions, these solutions were successful in changing the community's behaviour and attitudes towards potable water consumption across the Shire's operations and in their own homes. With the recent State Government's shift to Stage 1 water restrictions, the Shire has seen a strong response from the

community. A majority, having invested in water conservation measures over many years, were comfortable with Stage 3A being made permanent, with appropriate exceptions provided to commercial businesses.

Cultural Barriers

There are a number of culture barriers within our society that inhibit adaptation. The emphasis we place on certainty and control to guide decision making and society's high degree of risk aversion. We are good at short-term thinking but lack an ability to think longer-term. Our political structures support this, for example our present 4 year terms of Government whilst adaptation requires us to think up to 80 years ahead.

To adapt effectively it is important that we bring the community with us, yet because of the timeframes associated with climate change we are trying to engage a highly aging population who may only experience the early potential impacts of climate change and not experience the benefits of early adaptation. Intergenerational equity considerations need to be incorporated into adaptation decisions

The emphasis on the individual freedom of choice rather than community's often does not consider broader social (globally) and ecological communities. Net community benefit is referred to in this paper but this concept in itself requires substantial consideration about who will bear these costs and how these decisions will be determined.

These cultural barriers all present barriers to adaptation.

Organisational Barriers

Organisational Barriers include a lack of leadership amongst decision-makers and inconsistency with regards to decision making processes. Further clarity around roles, responsibilities and appropriate timeframes for action is required and increased responsiveness from the system. There is a need for a common understanding of intent across all relevant policies and a need to facilitate partnership between governments and the community in devising adaptation solutions.

Coastal Policy and Planning

Completion of a reliable assessment of coastal vulnerability will greatly assist the development of consistent and appropriate planning policy and planning controls along the coast. Accurately mapping coastal vulnerability will assist adaptation by identifying the extent and magnitude of risks to be addressed and the timeframes within which key adaptive interventions need to be undertaken and by whom. Concurrently there is an urgent need to provide guidance on when and how to conduct a reliable assessment of coastal vulnerability when decision makers are being asked to determine development applications on a given site along the coast.

While planning policies and planning controls can address future developments the challenge remains with regard to retrofitting established settlements. It is essential that Federal and State Governments give consideration to how best facilitate a coordinated response when determining adaptation responses in established settlements on the coast. In the absence of a coordinated and integrated approach to coastal adaptation it is likely that individual property owners, individual communities, including local municipalities, may take actions that do not account for any effects on adjoining or adjacent properties or localities. Similarly in the absence of a coordinated adaptation response strategy the cumulative effects of individual actions may not become apparent for some time into the future and may compromise the success of other interventions.

Currently the Victorian State Government is working in partnership with key stakeholders under the Future Coasts Project to carry out a detailed coastal vulnerability assessment for Western Port Bay. While this project will deliver important information concerning coastal vulnerability it is clear that a similar project is necessary for Port Phillip Bay. When the outcomes from projects such as this are known the Federal and State Governments should act quickly to identify interim programs to provide immediate assistance to Local Councils to prepare adaptation plans for the whole coastline. Consideration should also be given to examining the need to align policies and laws to facilitate the management of vulnerable areas of the coast.

Any future adaptation policy should provide a clear direction and articulate the roles and responsibilities of relevant stakeholders, identify appropriate governance structures and establish appropriate measures to guide decision making. Such a policy also needs to guide and facilitate capacity building and resourcing of coastal decision makers and managers. The present lack of a comprehensive adaptation policy means that current regulatory responses are not integrated and accordingly not necessarily producing the most desired results.

Another important element in any future adaptation strategy will be the condition and appropriateness of existing and proposed coastal protection structures. Critically there is a need to carry out an audit of existing structures and assets; determine ownership and clarify roles and responsibilities and prepare and implement a renewal strategy that will allow these structures to continue to contribute to coastal protection. In many situations existing structures in good condition will prevent inundation for coastal areas and prevent catastrophic failure of cliff and other vulnerable shorelines. A long term financial strategy for coastal adaptation must include provision for renewal of coastal assets. For many communities the cost of maintaining and renewal of major coastal structures is simply unaffordable. In this context a barrier to adaptation will be the ability of local government to access funding in a timely and affordable manner. Consideration should be given to examining the regulatory tools available to local government to raise finance in an economical and equitable way. For example it may be appropriate to consider how

developer contribution schemes are formulated and implemented and how government expenditures in coastal (and flooding) protection works can be recovered over time from the beneficiaries of any public works.

The Shire is already experiencing erosion of coastal areas for example approximately 35 metres of cliff face has recently collapsed at Pelican Point in Mount Eliza and the cliff tops at Tassel Creek Beach in Safety beach is eroding at a rapid rate. The Shire is also losing beaches in areas such as Portsea and Mount Martha. Clarity around roles and responsibilities at all levels of Government for management of these issues and access to funding in areas that don't involve crown land, are presently a barrier to effective adaptation.

Building Regulations

As indicated above there is a need to integrate and coordinate legislative and regulatory provisions. For example many planning schemes set a maximum overall height for buildings to protect streetscapes, neighbourhood character and viewlines. Where areas are vulnerable to inundation a minimum floor level is often required. Currently altering the planning scheme is a cumbersome process compared to setting a flood level under the Building Control Act. Considering how planning and building control inter-relate will be important in avoiding time delays and costs for development approvals.

Similarly it will also be important to facilitate the approvals process for innovative building techniques that can assist adaptation. For example overseas countries such as the USA and the Netherlands allow self closing flood gates as a protection against flooding. Currently it is understood that such devices are not acceptable in Victoria.

'The opportunity to review existing building standards to ensure that they reflect the risks posed by climate change is also likely to be limited. Most existing standards are reviewed and updated every 7 to 10 years. The frequency of review of the standards could prevent the timely review of standards that could be helpful in responding to climate change.' *The Role of Regulation in Facilitating or Constraining Adaptation to Climate Change for Australian Infrastructure*, August, 2011, p61

The Building Code of Australia presently requires all new homes, home renovations, alterations and additions to comply with a 6 Star energy efficiency rating. This is assisting with the uptake of adaptation options such as rainwater tanks and double glaze windows. As we are beginning to see 9 and 10 Star houses being built on the Peninsula it is important for the Federal Government to continue to raise the bar and to promote the use of a similar rating system for developments in vulnerable coastal areas.

The star rating approach could also be expanded to assist further with the integration of adaptation strategies in regard to facilitating the retrofitting of existing housing

stock in vulnerable coastal locations. Similar to the requirements in the *Victorian Bushfire Building Regulation 2011*, for bush fire prone areas the State could look to change the Building Code so that it varies across different geographic and climatic zones to ensure the housing stock is resilient to the key climate change risks in a particular area. It is suggested the Building Code could specify that hail storm prone areas use preferred roofing materials such as tin over terra cotta tiles.

Such area specific requirements might be initially perceived as more costly but potentially will result in more resilient and appropriate housing stock which will return longer term savings.

Flooding

The Mornington Peninsula Shire's Planning Scheme presently has two types of Flood Protection Overlays - Floodway Overlay (FO) and Land Subject to Inundation Overlay (LSIO). The FO are located along waterways, major floodpaths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding. The LSIO identifies areas prone to streamline flooding which have a lower flood risk than FO areas.

There is presently no State or Federal direction with regards to planning for the increase in rain intensity expected with climate change and the associated flooding issues. In Victoria the process for introducing or amending these overlays is cumbersome, time consuming and open to challenge. Acknowledging that the identification of these overlays in planning schemes may impact on the perceived value of the land it is not surprising that owners are reluctant to agree to their property being designated as flood prone or subject to inundation. However it is considered that the accurate designation of these overlays provides a long term net community benefit and that it should be simpler to amend planning schemes as and when reliable modelling of catchments is available and the performance of individual waterways are moderated by flood control or other installations.

The national guideline document for the estimation of design flood characteristics in Australia is the Australian Rainfall and Run Off Guidelines (ARR) is currently being revised. It is extremely important that the revised edition captures the predicted impacts of climate change on rain intensity. This is a key document used in determining the areas of land subject to flooding and inundation.

In the Shire's Integrated Drainage Strategy, which is an example of a real options approach, we have developed scenarios for a 32% increase in rainfall and a sea level rise of 0.8 meters. The 32% increase reflects the low end of the range identified by CSIRO (2008) (32 – 70%) and the 0.8m reflects the minimum sea level rise the Victorian Coastal Strategy requires planners to plan for. As an example to fully mitigate a 1 in 5 year storm at the Murray Anderson Creek Catchment (which covers approximately 1,300 hectares and includes approximately 50 km of pipes) indicative costing suggests it would be approximately \$9 million in pipe mitigation options. With consideration of climate change impacts, the figure increases potentially to \$25 million. Note, the Shire intends to use the outcomes from its Flood mapping to update Flood Protection Overlays.

Critical to the Shire's approach is to understand all potential impacts on flood levels and flood management that is likely to arise from the predicted impacts of climate change. The integrated approach of the Shire's strategy considers how flood waters behave across the landscape and over what timeframes does flooding occur and ebb.

Bushfire

Planning for potential Bushfire attack is now incorporated into both the Victorian Planning System and Building Control Act. Recent changes to the regulations regarding bushfire related issues have been introduced with little or no public consultation. Contrary to the view expressed above (about the need to review the process for changing planning controls to allow a simpler and faster process for amending planning schemes in the case of flooding and inundation overlays) it is considered that the changes for bushfire provisions with unrealistic timeframes for compliance did not allow sufficient time to ground proof the proposed areas to be designated.

There is also concern that the impact of the approach taken, particularly in regard to the impact on native conservation. Given the significant role that native vegetation plays in carbon capture and storage more care needs to be given to protecting vegetation and providing for vegetation offsets. This is illustrated by the 10:30 right and 10:50 right that have been built into planning provisions. Planning overlays, covenants and 173 agreements that sought to protect vegetation, are now all overridden by Bushfire Management objectives.

Vegetation provides an important carbon sink as well as habitat for our local fauna and stability in erosion prone areas. When planning for adaptation we need to ensure that we manage the consequences of the options we pursue. We need to consider the impact actions have on mitigation efforts and efforts to reduce our vulnerability to other risks, in this case loss of native habitat, and ensure we don't compound the adverse impacts of climate change.

Water

Water Act

The Shire also supports a review of the *Water Act* 1989, recognising that the management of our water cycle has changed and will change in the face of a changing climate and population. Issues around environmental base flow, groundwater entitlements, managing aquifer recharge, incorporating wastewater reuse into the water balance and stream flow entitlements are all in urgent need of reform in order to respond to the changing needs of our communities and local environment.

There is presently no direction from government regarding priorities and strategic direction for Integrated Water Management. Although this hasn't prevented the Shire

from undertaking flood mapping or developing its own Integrated Water Management Strategy, it has reduced the certainty of the strategy recommendations and direction.

Stormwater

The Mornington Peninsula Shire has worked closely with water authorities and corporations for many years to define and clarify regulation and entitlement regarding stormwater harvesting and reuse, a key adaptation solution. Gaps in both policy and regulation still remains which are limiting support for investment into this fit-for-purpose solution.

The current guidelines and management boundaries are insufficient to ensure confidence in reliability of supply for long term stormwater harvesting solutions. Similarly, the financial incentives to help build a business case for local government investment are limited. The Shire would encourage a review to determine effective market mechanisms to assist with this issue and ensure that water quality parameters are considered as part of the overall value of stormwater harvesting opportunities. Potential solutions include incorporating a nitrogen levy into all stormwater management obligations similar to that which applies to property developers and ensuring the appropriate distribution of the funds to the regions where they are collected.

Resourcing

Resourcing is an extremely important issue. The example of the costs associated with managing the Murray Anderson catchment provided above illustrates the enormity of the financial costs associated with adaptation. Note, the Murray Anderson is 1 of 22 catchments on the Peninsula that requires drainage infrastructure upgrades.

There are also huge resourcing implications. In the last 12 months the Shire has responded to over 2,500 service requests compared to approximately 1,200 in 2006 due to the increase in rainfall intensity we are already experiencing and its impact on our drainage infrastructure.

The Shire agrees with the notion that local approaches may be appropriate but local authorities need to be resourced appropriately. The Shire believes that Local Government is presently not appropriately resourced or equipped to respond to climate change and implement policies developed by State and Federal Government.

State and Federal Government need to be acutely aware of the impacts and flow on effects their policies are going to have on Local Government and ensure that appropriate resourcing, training (to help up-skill people) and support is provided. For example when the State Government introduced the Bushfire Management Overlay, resourcing was required so Councils could update their Municipal Strategic

Statement and Local Schedule to make sure they aligned with the new Bushfire Management Objectives.

Another example is with regards to emergency management where we are seeing a strong emphasis on the “lights and sirens” i.e. the role of the CFA and SES. Little funding has been directed towards local council officer resources, yet local councils carry a lot of responsibility. In most Councils the emergency services co-ordinator is an addition to a person’s primary role, due to lack of funding. There also needs to be a greater emphasis and resourcing for the long term impacts of recovery as this is often overlooked. State and Federal Government could actually be more proactive in this space and provide additional funding for Councils to further develop their programs that focus on building community resilience to specific threats they face as a result of climate change. In general, resilient communities will be better able to handle the changes and shocks arising from climate change.

With a “bottom up” approach local government also needs strengthening to assist in making potentially very tough adaptive decisions in circumstances where people facing the “greatest losses” dominate lobbying for action.

Roles, Responsibility, Timeframes and Funding

It is vital for roles and responsibility around adaptation to be clearly defined. In instances where they are not, issues can be left unresolved and appropriate adaptation options not pursued.

For example, asset managers across Federal, State and Local Government need to clearly identify who is responsible for the renewal of assets on Coastal Crown Land. This includes assets such as piers, jetty’s, amenity blocks and roads, as well as protection assets (as identified under Coastal Policy and Planning above). Without proper identification of responsibilities assets can be left unattended and exposed to the potential impacts of climate change.

As yet, a comprehensive identification and assessment of climate change risks has not been undertaken for the spectrum of Australia’s infrastructure. *The Role of Regulation in Facilitating or Constraining Adaptation to Climate Change for Australian Infrastructure*, August, 2011, p19

This is seen as a critical first step to determine whether and how our infrastructure can respond to climate change risks. Many Councils manage major infrastructure for our communities and this aspect will become increasingly important.

Government also needs to work in conjunction with research institutions and relevant stakeholders, including the community to determine appropriate adaptation triggers, which serve as a red flag and prompt a management response. Timeframes also need to be defined.

Clarification is also required to determine who will be responsible for paying for which aspects of adaptation and appropriate funding models developed. As identified under Coastal Policy and Planning (above) consideration should be given to examining the regulatory tools available to local government to raise finance in an economical and equitable way. For example for new developments, developer contribution schemes can be considered and for existing developments, tools such as special charge schemes which presently apply to the development of new footpaths and unmade roads can be implemented.

Importantly the capacity of individual communities to pay should not be the only criteria applied to the decision to intervene and care must be taken to ensure that adaptation responses are fair and equitable across the whole community.

Pressures on the Existing Social Safety Net

It is predicted that climate change is going to have large impacts on the existing social safety net within Society. Predictions include increased displacement and social isolation. Most vulnerable people such as people with a disability, older people, homeless and those on limited incomes will experience greater difficulty adapting to climate change and accessing assistance especially as they have poor literacy skills, limited to no computer skills and limited access to IT.

There will be increased demands on emergency relief, material aid, emergency housing and food relief, yet the current system is unable to cope with existing demands. It is also expected that food security issues will become more complex. Food affordability is of concern but also the quality of the food that will be available compared to that required to maintain good health.

There is expected impacts on social and community infrastructure as they may be used differently i.e. community centres being used as emergency centres or safe centres in times of crisis, however many are not purpose built for this. We may also see social fracturing, that is, a social breakdown due to increased competition versus collaboration in communities for resources. Often in these situations the more articulate and powerful obtain access to resources with other parts of the community being left more vulnerable, exacerbating existing social and health inequalities.

Increased risk of disease and health issues (including mental health and depression) is expected to place increased pressure on medical and health facilities. There may also be the emergence or re-emergence of some diseases and viruses.

These impacts on the existing social safety net all emphasise the need for more outreach and support services.

Other Issues

Economic Rationality

There appears to be a strong emphasise on economic rationality within the paper with most aspects of the reform agenda oriented towards economic initiatives. In this regard reforms to property valuation in the context of future climate change impacts (cf CSIRO Experimental Economics research) would be useful. One of the

issues with economic rationality is that the 'land' upon which all of life depends is not included as a commodity value (externality) and its protection for habitat and biodiversity is not included in the economic calculations. Public land values are almost impossible to estimate in this kind of equation which centres on commodity valuation.

Conserving Public Land

In determining appropriate approaches to adaptation, consideration could be given to developing taxes or regulation to conserve sufficient public land to ensure habitat for biodiversity purposes.

Impacts of adaptation on mitigation

The paper states that adaptation can be as simple as buying an air conditioner to accommodate increases in temperature. Adaptation options which result in increases in greenhouse gas emissions need to be reviewed to ensure mitigation is considered so that climate change issues aren't compounded. For example, in this instance the Government, similar to the European Union, could develop energy efficiency regulations for retail and commercial air conditioners.

Legal Liability

Climate change has major implications for local council planning policies and development approval processes especially in regards to potential risks and liability. Concerns about legal liability may restrict the ability of councils to achieve good economic, social or environmental outcomes.

Supporting Small Enterprises

The Mornington Peninsula's economy is dominated by micro business, approximately 90% of the 6,500 local enterprises employ 10 or less employees. This structural aspect of our economy means our enterprises require leadership and support to understand complex issues and deal with change, such as that required to adapt to climate change. The Shire has recently launched a sustainability program (the Best Bites Program) for all food premises that assists and rewards improvements in water, energy and waste, as well as food safety and responsible serving of alcohol.

To further assist our local enterprises with adaptation it is strongly recommended that the Government provide clear adaption pathways for business to follow to ensure they adapt appropriately. Lack of leadership from the government will only exacerbate the difficulties associated with change. Local Government can assist in this process with appropriate training and resourcing.

References

CSIRO, Marsden Jacob and Associates and WPGA, *People, Property and Places: Impacts of Climate Change on Human Settlements in the Western Port Region*, June 2008. <http://www.seccca.org.au/ppp.asp>

Maddocks Lawyers, *The Role of Regulation in Facilitating or Constraining Adaptation to Climate Change for Australian Infrastructure, Report for the Department of Climate Change and Energy Efficiency*. August 2011

Appendix A: Mornington Peninsula Shire Case Study Climate Change Engagement

In recognition of the need to further engage with our community on climate change issues in 2007 we commenced the development and implementation of a climate change engagement program that was broken into three stages.

The **first stage** – Climate change research, was focused on identifying the potential impacts of Climate Change on our region. Through the South East Councils Climate Change Alliance, the Shire worked with CSIRO to obtain an understanding of the likely impacts of climate change in the Western Port region over the next fifty years. The work resulted in a report launched in 2008 - Impacts of Climate Change on Human Settlements in the Western Port Region: People, property and places.

Stage two - *Climate Change Conversations* was focused on informing our residents of the outcomes from the CSIRO study, discussing their concerns and amongst other things, identifying barriers to behaviour change.

Twelve community forums were held across the Peninsula. The content of the sessions was tailored to the localised impacts and demographics at each of the locations and the issues raised by residents. Local school children opened each session talking about their school's sustainability initiatives.

To encourage attendance a document summarising the research outcomes was distributed to all residents and ratepayers with the Shire's newspaper *Peninsula-Wide*. For effect, the two were wrapped in brown paper with the note – IMPORTANT INFORMATION INSIDE.

Each resident and ratepayer was also sent a personalised letter inviting them to the *Conversations* which we also advertised in local newspapers, on erected billboards and on flyers posted in local shopping centres.

The sessions were considered extremely successful with over 3,000 residents in attendance. The Shire has responded to over 30 requests for additional presentations for Community groups and schools, which have engaged an additional 1,000 residents.

Stage three - *Continuing the Climate Change Conversation* – *behaviour change program* has been based on the feedback received from residents who attended the 'Conversations'. Key barriers and concerns identified by residents - cost (42%); access to

grants (23%); lack of information (14%), too much information (9%); and a perceived negative impact on lifestyle (7%). Key activities to date include:

1. Co-ordinated Group Buy schemes for Solar PV, Solar Hot Water and Rainwater Tanks - over **1800** community members registered interest and approximately 700 residents made purchases
2. Development of a Green Business Network - over 950 businesses are registered with 50 actively participating
3. Launch of an Eco Living Display Centre, demonstrating best-practice in sustainable building and living principles – over 800 residents and 30 local business involved with the launch and to date over 3,000 residents have visited the centre; and
4. Continuing the Climate Change Conversation Newsletter – sent every 2 months to over 1,500 residents receiving the newsletter