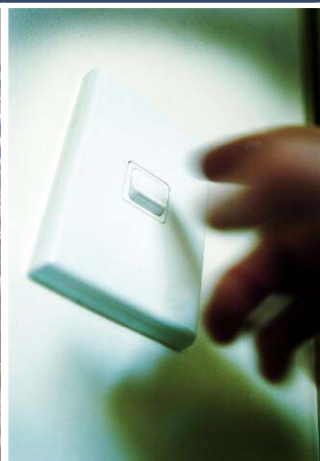


Promoting Social Inclusion in Adaptation to Climate Change: Discussion Paper



Promoting Social Inclusion in Adaptation to Climate Change: Discussion Paper

Janet Stanley
with assistance from **Robert Birrell and Ernest Healy**

Report 10/02

February 2010

**Commissioned by the
Department of Sustainability and Environment, Victoria**

Acknowledgements

The author would like to thank Robert Birrell and Ernest Healy who produced the demographic maps. Thanks also to the Local Government staff and the welfare and community representatives and who gave their time and information to assist in the writing of this paper.

Produced by the Monash Sustainability Institute

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September 2009

ISBN: 978-0-9806387-4-5

To be cited as: Stanley, J. (2009) '*Promoting social inclusion in adaptation to climate change: Discussion paper.*' *Monash Sustainability Institute Report 09/4, for Sustainability Victoria, Melbourne.*

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Summary

In partnership with the Department of Sustainability and Environment and the federal Department of Climate Change, the Western Port Greenhouse Alliance has undertaken a series of studies on climate change adaptation. The Alliance encompasses the Local Government Shires of Mornington Peninsula, Cardinia and Bass Coast and the Cities of Frankston and Casey. This discussion paper builds on this work. The paper reviews the issue of social adaptation, especially for those who are at risk of social exclusion or those who are faced with barriers to full participation in society. Ability to adapt to climate change will depend on the specific climate event, government policy, living location, planning and preparation, and person, social, psychological and economic factors.

It is important to note that the task of adaptation will be reduced where mitigation policies are comprehensive and effective. However, adaptation will be needed due to both the direct impacts of climate change, and the indirect impacts that will arise due to factors such as government mitigation policy. Adaptation measures should be inclusive and participatory, cost effective and efficient, consistent and complementary with mitigation measures, and take account of equity principles.

The numbers and proportion of the population for each of the selected groups of people who are at risk of social exclusion and therefore vulnerability to climate change impacts, was examined for the five Local Government Areas. Their location was mapped at the ABS Collection District scale. Such groups included people over 65 years of age, single parent families with children and unemployed men between 25 to 44 years of age. An index of vulnerability is proposed with four levels of increasing vulnerability as a process to understand need and therefore allocation of resources.

The report offers a range of suggestions to facilitate adaptation. These include maximising the reduction of greenhouse gasses, government policies and regulation, improving urban structure and public transport, and facilitating the ability for communities to assist themselves through the promotion of social capital and connections with the community. The report provides an initial scoping of adaptation processes and programs already being undertaken in some of the Local Government Areas.

A model is proposed to facilitate adaptation. This includes the three levels of government, welfare and community non-government organisations, and the community. The government sector would provide resources, planning, legislation and regulation, as well as programs, and provision of research and information. The non-government sector would provide prevention and intervention services, capacity building engagement, inclusion and Social Enterprises. The community would provide local leadership, volunteers, identification of vulnerabilities, empowerment and advocacy.

Representatives from each of these sectors would provide a member for a Regional Adaptation Council to set priorities, co-ordinate approaches, secure resources and oversee progress on adaptation. Such Regional Adaptation Councils could be established in each regional area in Victoria to facilitate a state-wide approach to adaptation. A Co-ordinating and Advisory Group would oversee this adaptation across Victoria. The Regional Adaptation Councils would be assisted by a group which would provide secretariat services. An Innovation and Strategy group, comprising widely drawn members from government, business, academia, non-government organisations and the community would provide research, new knowledge and technological developments to assist in adaptation.

1 Introduction

Background

The Western Port Greenhouse Alliance (WPGA) comprises five local government areas (LGAs): the Shires of Mornington Peninsula, Bass Coast and Cardinia, and the Cities of Frankston and Casey and unincorporated French Island (Figure 1.1). It was established in June 2004. The WPGA provides a regional approach to understanding and responding to climate change.

Figure 1.1: Location of local governments which comprise the WPGA



Source: Brooke & Kinrade 2006, Map courtesy of Melbourne Water, Landsat 2001
Copyright: Commonwealth of Australia 2001

In partnership with the Department of Sustainability and Environment (DSE) and other organisations such as the federal Department of Climate Change (DCC), the WPGA has undertaken a series of studies on climate change adaptation. A group of three scoping studies were completed between November 2005 and July 2006. These were a needs analysis based on interviews with regional stakeholders in order to assess their requirements for information and their current awareness about climate change adaptation (Regional Development Company 2005). The second study provided an overview of climate change impacts in the region, in relation to natural resources and the environment, the economy and on society (Brooke & Kinrade 2006).

The final scoping study reported on four workshops which examined the risks and opportunities from climate change based on eight priority sectoral issues:

- coastal and marine biodiversity and habitats
- groundwater
- housing and accommodation
- infrastructure siting and planning
- potable water supply
- emergency response to storms
- stormwater
- waterways and streamflow

Particular emphasis was given to community engagement and capacity building and regional integration and co-ordination (Marsden Jacob Associates, Regional Development Company & CSIRO 2006).

Two further studies were commissioned in 2008. A larger and more detailed study, *The impacts of climate change on settlements in the Western Port region*, was completed in June (Kinrade & Preston 2008). This was followed by an examination by stakeholders of selected risks and responses, which will be needed to identify climate change impacts (Kinrade & Justus 2008a, Kinrade & Justus 2008b).

This discussion paper builds knowledge and understanding about the challenges of adaptation. It particularly focuses on adaptation that will be faced by members of the community who are disadvantaged and who may be at risk of social exclusion. Work to date on adaptation to climate change has given little consideration to social implications generally, nor to the resource limitations of particular groups in Australia. People who may have difficulty adapting include those who are at risk of social exclusion, those who lack knowledge about climate change and possible sources of assistance, those who lack financial resources and those with physical and mental disability. In addition, disadvantaged people will often have greater vulnerability to climate change than other citizens, and may experience multiple barriers to adaptation. For example, low income households are often in communities with lower access to public transport, and usually have poorer quality housing, which will be at greater risk of storm damage.

This paper is a scoping study on the numbers and location of people who may have particular adaptation difficulties, the resources which are presently in place to respond to this identified need and the additional resources needed to prevent growth in the numbers of people in the region who will have difficulties adapting to climate change. The paper considers ways of addressing adaptation needs, particularly how local communities can be assisted to provide social capital and resources to improve their resilience.

This project may form a model for approaches that incorporate those most at risk into major adaptation strategies across many Australian regions.

Method

This paper gathers information from the literature and discussions. Informal consultation was undertaken with Council staff - mainly social and environmental planners, local government Councillors, welfare agencies and community groups. Maps were prepared by Robert Birrell and Ernest Healy at the Centre for Population and Urban Research.

Characteristics of the five LGAs

The characteristics of the five LGAs will only be touched on briefly here, as this issue was addressed in the previous Western Port reports (see particularly Brooke & Kinrade 2006). The Western Port LGAs comprise a diverse economy and demography, with urban housing development, industry, tourist areas, rural towns and farming. Over half a million people live in the area with considerably higher than average urban growth than that experienced elsewhere in Melbourne and Victoria. Those LGAs closer to Melbourne (the Cities of Frankston and Casey) have the highest urban growth in the region, as do the northern parts of the Shires of Mornington Peninsula, the western side of Cardinia Shire and Philip Island. Casey City Council has recently been asked by the Victorian Government to provide 2,900 hectares for new housing outside the urban development boundary. Second houses (holiday houses) are present particularly around the coast in Mornington Peninsula Shire and Philip Island.

Brooke and Kinrade (2006) note the importance of manufacturing, wholesale and retail trade and construction as employers in Western Port councils, although many Western Port residents travel to work outside the region. They note that in 1998, high levels of income were earned outside the Shire of Cardinia (84%), the Mornington Peninsula Shire having the lowest proportion of income earned outside the Shire (55%). Generally, household income is on or below average for the state as a whole. Important pockets of biodiversity remain in the area.

2. The Climate Change Adaptation Challenge

The adaptation challenge

The present level of greenhouse gasses (GHGs) in the atmosphere (385 parts per million) is such that an impact on climate is being observed in the form of temperature rises, reduced rainfall and increased evaporation in some parts of Australia and excessive rain in others, and more severe storm conditions and sea level rises. This has resulted in an increase in fires, floods and spread of vector borne diseases, as well as a decline in agriculture and forestry in southern and eastern Australia (Adger et al. 2007).

These impacts are likely to increase in severity as the levels of GHGs rise over the coming years. The response to climate change requires two closely aligned actions: mitigation or directly reducing the emission of GHGs into the atmosphere, and adaptation or changing behaviour to respond to climate change. The better that mitigation is achieved, the less will be the adaptation task. However, significant adaptation tasks now appear to be unavoidable as the level of GHGs in the atmosphere continue to rise, despite increasing international recognition of climate change.

Adaptation requires the involvement of all sectors: households, business, government and non-government organisations. The UK Department for Environment, Food and Rural Affairs (DEFRA 2009) argues that adaptation needs to be made part of everyday decision-making and built into normal planning and risk management processes. Because of the complex and interconnected nature of human, economic and natural systems, one particular impact or decision can lead to a chain of impacts, affecting several different sectors of society. Therefore a holistic approach needs to be taken. As a particular change in climate can have a very different effect on different people and places, local knowledge and local planning is also very important. Thus adaptation is a local and regional as well as national issue.

Principles of adaptation

The planning and adoption of adaptation measures should be inclusive and participatory. They need to be cost effective and efficient, consistent and complementary with mitigation measures, and take account of equity principles. They also need to compliment other measures, such as those addressing other sources of pollution. Climate change impacts on the natural environment, cultural and historical heritage and Indigenous culture need to be included. The measures also need to be subject to on-going review and modification where technological improvements become available and other impacts become understood.

The adaptation task

The process of adaptation involves making decisions in all areas of life, at the right time and maximising the benefits and minimising the costs (DEFRA 2009). It is essentially a process of risk management. Adaptation challenges can be summarised as:

1. Direct impacts from climate change
 - a. those which can be predicted
 - b. those where it is known that there is a chance the event will happen, but there is little warning about when, where and how severe.
2. Indirect, second order outcomes.
 - a. They may occur because of a direct impact, such as loss of a food growing area due to severe storm damage,
 - b. They may arise from government policy to reduce GHG emissions, such as a carbon price.

Direct impacts

Some events can be anticipated as likely to occur (such as drought conditions and a rise in the sea level) and planning can be put in place. Other events, such as weather extremes and bushfires will be anticipated as likely to occur, but the severity and location may be less understood so emergency response systems need to be in place. In practice, the boundaries between these direct impacts is often unclear.

The notion of extreme weather and events varies from place to place. Such events include hot and cold days and nights, heavy rainfall events, droughts and floods, hail and thunderstorms, tropical cyclones, bushfires and extreme winds (Lynch et al. 2008a). Apart from an increasing temperature and decreasing frost, little can be said with confidence about extreme weather events, except that they will increasingly occur. Worldwide there has been a threefold increase in extreme events from the 1960s to the 1990s and a ninefold increase in damages (Munich Re Group 1999). More than one extreme event can occur at the same time, such as high winds, heavy rain and sea level surges (Nicholls 2008). The risk of very high and extreme fire danger days in south-east Australia is likely to rise between four and 25 per cent by 2020 and 15 and 70 per cent by 2050 (Hennessy et al. 2007). This will be accompanied by an increase in fire intensity and faster spread.

Both types of direct impacts are novel, being outside the range of human experience to date (Adger et al. 2007). All have a degree of uncertainty. However, the earlier the planning the better equipped people will be to cope with changed conditions.

Indirect impacts

Higher temperatures will particularly adversely impact those who are aged, sick and infants, and also increase the risk of food spoilage and gastroenteritis. In 2003, the heatwave in Europe led to the death of 75,000 people (Giddens 2006). About 1,100 people over 65 currently die each year in Australia due to heat-related causes, a figure which is likely to rise in the future (Lynch et al. 2008a). Other health risks include the spread of vector and water-borne diseases, exposure to solar radiation (skin cancer) and respiratory diseases, and mental health issues relating to depression and stress-related disorders.

The greatest impact of climate change in the near to medium future will be on human dependent biological systems (Lynch et al. 2008b). Water shortages will increase, making it increasingly difficult to meet household, industry, recreational and agricultural needs, as well as ecological requirements. Victorian agriculture faces continuing pressure from declining rainfall, temperature changes and the rising cost of inputs such as fuel and fertiliser (Alston & Witney-Soanes 2008). The viability of some rural communities is threatened, with accompanying social and psychological stress. As a result the price of water and food prices to consumers will rise (Larsen, Ryan & Abraham 2008).

An increase in the price of carbon due to government policy to reduce carbon emissions, will result in many price rises of goods and services. About half of household carbon consumption in Australia comes directly through the use of electricity, gas and petrol, the other half coming from embodied carbon in goods and services consumed by Victorian households. In 2001, the average carbon consumption of Victorian households from private consumption was 36.5 tonnes per annum (NIEIR 2007). At a \$25 per tonne carbon price, this will result in the average householder paying an extra \$913 per year (2006 prices) on their 2001 consumption patterns.

Figure 2.1 shows the average sources of energy use in an Australian household. Those presently reporting difficulty paying electricity, water and gas bills are those on a low income who receive utility concessions other than aged concessions, public renting tenants and large households of over four people (KPMG 2008).

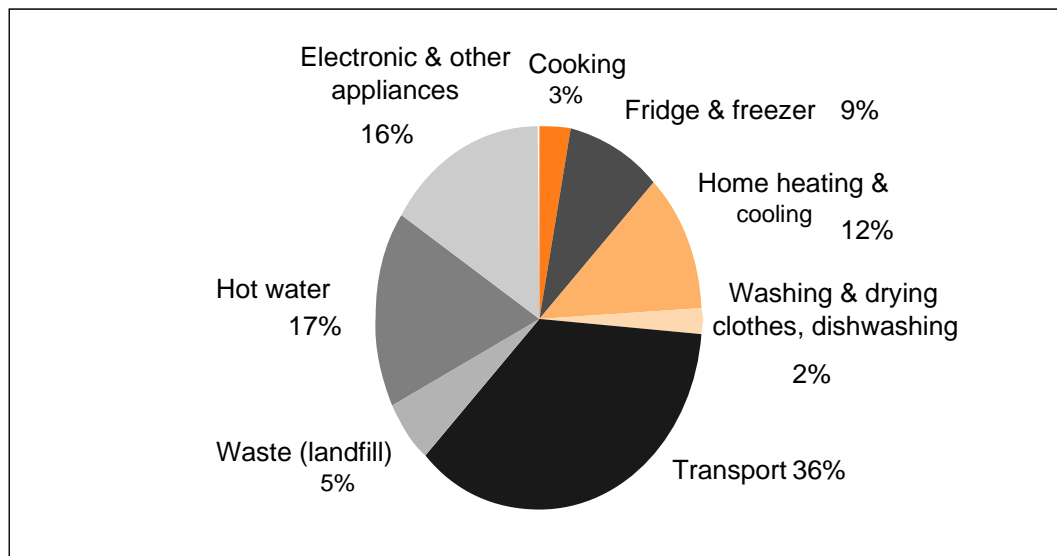
Considerable energy savings can be achieved through greater efficiency of energy use, such as reducing usage, for example, of heating and cooling and improvements to insulation and air sealing. Households could change their source of energy to one with lower emissions, such as gas and solar. Water saving measures include taking shorter showers, the installation of low flush toilets, water catchment and tank systems, and grey water systems.

This behaviour will reduce GHGs and reduce costs for households. By way of example, maintaining and retrofitting old fridges can provide cost and GHG savings of an estimated 25 per cent (BSL 2007). For example:

... cleaning the condenser coils, shielding or locating the refrigeration equipment away from heat sources, defrosting regularly, repairing damaged or dislocated door seals, adjusting the operating temperature of the units etc. (Sustainable Energy Authority of Victoria 2004, p.25)

Similarly, conversion from standard light bulbs to compact fluorescent lamps produce an average annual savings of about \$50 per household and national savings of 4 million tonnes of GHG emissions (DEWHA 2008). The Australian Government aims to phase out incandescent light bulbs by 2009–2010.

Figure 2.1: Average sources of energy use in Australian households



Source: Department of Sustainability and Environment (2007)

The cost of these impacts will not only disadvantage those most at risk of social exclusion, but also impact on Australian and local economies through an impact on infrastructure and capital and therefore changes to industry viabilities (Lynch et al. 2008b). This will in turn impact on regions in terms of socio-economic strengths and employment opportunities.

Large scale modification to coastal landforms, such as barrier dunes, mangrove areas and coastal estuaries will result in loss of local tourism and amenity in holiday resorts, with risks to the economic viability of these communities. As well as the degradation of tourist and holiday centres, other forms of recreation are presently in jeopardy.

Vulnerability and adaptive capacity

Climate change will impact on different people differently. The nature of the impact will depend on factors external to their own situation and attributes such as the climate change event, the person's living location, sustainable practices in use, planning which has been undertaken on their behalf and resources available to assist with this task, as well as personal factors such as knowledge and information about the adaptation task needed and resources and capacity to adapt.

The earlier Western Port reports identified the locations most at risk from climate change in the form of physical impacts: damage to infrastructure, risk of water inundation, sea level rises and storm surges, and from fire. All people living in these identified geographical areas could be considered to have some degree of vulnerability to being adversely impacted by climate change. However, those people already experiencing some form of disadvantage and who are at risk of social exclusion, will have the greatest vulnerabilities and experience the greatest difficulties adapting to climate change if they are not offered sufficient targeted resources and support.

The nature of disadvantage and social exclusion

Traditionally, disadvantage has been understood in terms of poverty in a financial sense. Poverty can be either absolute or relative. Absolute poverty refers to not being able to procure basic needs, whereas relative poverty is seen as not having the same resources as one's peers. In Australia most poverty is relative, although there are pockets of absolute poverty such as can be found in some rural areas, associated with some people with severe mental illness and fragility through age or illness, in some Indigenous communities, in families fleeing domestic violence and youth experiencing homelessness.

In Australia, poverty has been traditionally measured using the Henderson Poverty Line. This is an estimate of disposable income required to support the basic needs of a family of two adults and two dependant children. This measure is updated quarterly (Melbourne Institute of Applied Economic and Social Research 2007). The Henderson Poverty Line has become somewhat dated as it was originally calculated in 1973 and has been updated by the application of an index based on changes in per capita Household Disposable Income. This estimate has become distorted by the changes in the nature of households, the change in the mix of household expenses and the changes in relative prices of goods.

Commonly used in Australia now is the half-average income line or half-median income line. The National Centre for Social and Economic Modelling (NATSEM) uses 50 per cent of the median equivalised household income (Tanton, Harding & McNamara 2007). Using the measure of 50 per cent of median Household Disposable Income, an estimated 13.7 per cent of Australians are below the poverty line (2005-06 figures) (Unkles 2008).

However, only considering income has a number of drawbacks. Little or no account is taken of needs, consumption, assets, and other factors which impact on life quality, such as personal satisfaction. Subsequently, measures have been introduced to address such issues. For example, recent work in Australia on Indicators of Disadvantage has derived ratings on essential items or socially perceived necessities from the general community and from people who are disadvantaged (Saunders, Naidoo & Griffiths 2007).

Social exclusion

The concept of social exclusion as a way of understanding the multiple dimensions of poverty and disadvantage, is now commonly used in Australia. While poverty and social exclusion are closely entwined, social exclusion has been described as the existence of barriers which make it difficult or impossible for people to participate fully in society or obtain a decent standard of living (Social Exclusion Unit 2003).

There is usually a combination of barriers which may be linked and mutually reinforcing (Bradshaw et al. 2004). Examples of barriers include lack of educational opportunity, inadequate housing, ethnic minority status, low social capital and connection to the community, and lack of transport. The literature suggests that people who may be at risk of social exclusion include those on a low income, those who are unemployed, aged people and youth, new migrants, people who live in isolated areas, single parents, and people with poor health and who have a disability.

While an exact definition of social exclusion has proved to be elusive (Saunders 2003), commonalities of factors included in the concept have been developed in the UK from 2000. Drawing on these common factors, recent Australian research (Stanley and Stanley et al. 2009) has defined a person at risk of social exclusion as having one or more of the following dimensions present:

- Household income under \$500 per week gross
- Not in paid work, retired, carer or volunteer
- Low participation in sport (participant or spectator), hobby or arts
- No social support when in need
- Lack of involvement in a political event, trade union, campaign or action to improve social and/or environmental conditions.

While one of these five dimensions may be sufficient in itself for a person to be at risk of social exclusion, the risk increases along with the number of dimensions present. Recent research has found that in Melbourne, 45 per cent of the 535 people interviewed had none of the dimensions present, 35 per cent had one dimension, 13 per cent two dimensions present and six per cent had three or over. This research undertook a comprehensive examination of a wide range of factors that are likely to influence whether or not a person experiences social exclusion. A statistically significant association was found between a person who does not experience social exclusion and their strong sense of community, the presence of social capital, a trust in people, they had a medium or better income, they are able to be relatively mobile and do not feel obstructed by life's circumstances.

Sen (1987) argued that a person's well-being should be based on the capacity to do, which may be unequal between people. To achieve certain levels of capability, it may be necessary to offer more to those with less than others in order to overcome the systematic disadvantage they face. The logic of the social exclusion approach is that the way of 'including' people with these disadvantages is not only, or even necessarily, to give them more money but also to develop policies which specifically address their sources of disadvantage. There needs to be certain conditions present so in a decent society, a person can decide what they are going to do and be. People need the capability to be able to achieve a 'good enough' level of social inclusion and well-being.

Thus, it could be said that to assist a person to be included in society, it will be important to promote the factors outlined above, their social capital, attachment to community, their level of income, their mobility and where possible, their perspective on life. These conditions are arrived at through the provision of certain structures and services, as well as personal attainment. Shields and Wooden (2003, p.3) say:

it can reasonably be argued that the principal goal of government should be to enhance the welfare, or utility, of its citizens.

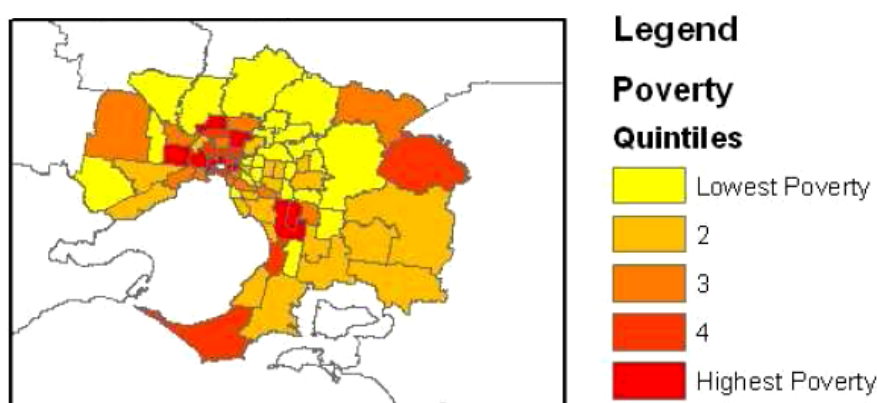
Part of the essential thinking behind the capabilities argument is the idea of giving people choices about how to enhance their own well-being. The further implication here is that there is a need to address:

persistent inequalities and disadvantages... through a principled commitment to affirmative action, to getting all citizens above the threshold on all the major capabilities (Nussbaum 2005, p.43).

Locational disadvantage

As well as groups of people with certain characteristics who may be at risk of social exclusion, particular locations may have clusters of disadvantage (NATSEM 2008, Vinson 2007). Geographic differences in advantage and disadvantage has been mapped in Australia, the LGAs around Western Port Bay being shown in Figure 2.2. The researchers have included Bass Coast Shire in the non-Melbourne Metropolitan map (not shown in Figure 2.2) but it has the highest rating of poverty levels. Southern Mornington Peninsula also has high poverty levels.

Figure 2.2: The spatial distribution of poverty as measured at the level of Statistical Local Area (SLA). The measure is population-weighted quintiles of Household Disposable Income.



Source: Tanton et al. 2007, p.9

However, this measurement is very blunt when used on a large locational area such as LGAs, used in this mapping. Where an area has income extremes, an averaging process leads to disadvantage becoming under-estimated. This type of measurement also overlooks scattered poverty, where small pockets of disadvantage sit next to areas of advantage. The size of this scattered poverty may not be inconsiderable (Stanley, Chi Wai Ng & Baker 2005). Thus mapping on this scale may not be very useful for policy development.

When Household Disposable Income is compared based on deciles, rather than quintiles, the LGAs in the Western Port area do not fall into the more extreme end of poverty levels. Thus, while overall, rural areas (including areas around Western Port) experience some financial hardship, the more extreme levels of poverty tend to be in pockets of the major cities, including Melbourne. Part of rural disadvantage, as measured by Household Disposable Income, may be offset by lower housing prices in rural areas.

Disadvantage and vulnerability to climate change

Climate change will require some form of adaptation by all people. 'Vulnerability' can be defined as being at risk of, or exposed to, hardship or damage. Vulnerability to climate change will be influenced by a number of broad factors:

- the specific climate change event
- federal, state and local government policy
- living location
- planning and preparation that has been undertaken by citizens, communities, business and government
- personal social, psychological and economic factors

These factors are linked and interact in complex ways. Whatever the combination of these factors, those who are already experiencing disadvantage and social exclusion are more likely to experience the most difficulties in adapting to climate change. They have fewer resources to deal with the challenges. However, there is also a risk that the costs of adaptation may move people who are presently just managing, to a point where they begin to struggle and their broad vulnerabilities increase and well-being decreases. Some of the risks of climate change include the exacerbation of relative poverty, and the establishment of absolute poverty where the ability to maintain adequate quality food becomes more difficult for some people. Some specific examples of vulnerability and the broad factors that lead to this vulnerability are now given.

Government policy

All government policy in relation to climate change needs to factor in equity adjustments. In Australia there is already a growing disparity in household wealth (ABS 2005–06). There is a high risk that without sufficient recognition of growing inequality, climate change itself and policy to respond to climate change, will increase this trend. Those with a low income spend a higher proportion of their income on essential items (such as food, petrol and heating) than those with a higher income. Poor households have little discretionary spending and therefore less capacity to move from appliances that use high levels of energy to more efficient alternatives. Commonly, those at risk of social exclusion are less well informed and lack access to information on behavioural changes that can help them reduce their use of energy. Thus, there is a need for comprehensive and effective social policy at state and local government as well as federal government levels.

Mitigation policy in Australia, where the federal Carbon Pollution Reduction Scheme (CPRS) is the major instrument, is largely reliant on market forces or price signals to reduce carbon use. However, due to the inelasticity of demand for high carbon emitting products such as home heating, food preparation and transport, a carbon price is regressive. Those with lower incomes will pay a higher proportion of their income in a carbon price. With a carbon price at \$25 per tonne, for example, this will cost an average high-income Australian household about \$369 (utility adjusted) per year or 0.4 per cent of household expenditure (NIEIR 2007). A high-income household is defined as one where the average weekly expenditure (excluding rent and mortgage payments) is \$1925 (2006 figures) or approximately double the expenditure of an average Australian household. A poor household will experience an additional cost of \$558 (utility adjusted), which amounts to 2.3 per cent of household expenditure. A poor household is defined as having a weekly expenditure of \$507, representing about half that of an average Australian household. The figures account for direct carbon consumption (petroleum products, gas or electricity), which is about half of the total carbon usage, as well as indirect sources of carbon through the manufacture and supply of goods and services.

The four household categories most adversely impacted by carbon pricing are poor households, unemployed households, retired aged pension households and households with children where government benefits exceed 30 per cent of income. The lowest impact is on double-income households with no children, households with income greater than \$70,000 where the head is aged over 50, and high-income tertiary-educated households.

The regressive impact of carbon pricing occurs despite the fact that people with a higher income typically have a higher carbon footprint: approximately 57 tonnes of carbon annually, compared with only about 22 tonnes for people with a low income (NIEIR 2007). At present 13.7 per cent of Australians are below the poverty line, defined as 50 per cent below the median income level (Unkles 2008). Without government assistance, a CPRS with a carbon price of \$25 per tonne will place an additional 2.4 per cent of Australians below this line.

As noted in the White Paper, the federal government intends to return all funds raised by the CPRS back to households and businesses (Federal Government 2008). This redistribution is planned through direct payments. For example, 2.9 million low-income households (such as pensioners, seniors, carers and people with a disability) will receive funds equal to 120 per cent of their cost of living increase arising from the CPRS. Around 97 per cent of middle-income households will receive some direct cash assistance, with about 60 per cent of these (or 2.4 million households) receiving sufficient assistance to meet the overall expected cost of living increases. In addition, motorists will be protected from higher fuel costs through a 'cent for cent' reduction in fuel tax for the first three years after commencement of the CPRS. It is as yet unclear as to how the March 2009 federal revisions to the CPRS where the scheme is postponed 12 months and there will be a flat \$10 tax carbon tax for the first 12 months, will impact on the payments outlined above.

It is simplistic to view equity solely in terms of a monetary redistribution to meet the costs arising directly from a carbon price. Equality should also be viewed as equity in well-being which includes the facilitation of participation and inclusion and the development of capability to participate within the economy (Jayasuriya 2006). Equity principles should also consider issues such as self-respect, social norms and opportunities to enhance social capital development, which will increase personal resilience and increase the ability to adapt to climate change, as well allow people the freedom to choose their own goals (Jayasuriya 2006). Thus a range of policy measures are needed to enable vulnerable people to adapt more comprehensively and reduce the likelihood that climate change will be an additional major cause of social exclusion. Such measures will be discussed later in this discussion paper.

Living location

The extent of vulnerability to climate change will partly depend on living location. Disadvantaged people who live in areas with strong locational impacts will incur the greatest difficulties in adapting. For example, as addressed in the earlier reports on the Western Port region, these include rising sea levels, as well as storm activity and wave surges, which will place at risk some urban coastal areas around Western Port Bay. Some industries, and thus employment opportunities, may be threatened. For example, loss of marine diversity and thus fish stocks is likely to impact on the fishing industry (McPhail 2008). The changed location of energy sources in the move to renewable energies will lead to some industry relocation. Ecologically rich sites with a high tourist value, such as the Seal Rocks and Philip Island development will be at risk of degradation and loss of tourist value.

Location may be impacted by internal and international migration. This will impact on an area through the loss of critical skills through people leaving or an influx of perhaps already disadvantaged people seeking an alternative living location. Changes in arable land through climate change will, for example, necessitate some farmers to move off the land, perhaps bearing a large right-down of capital assets.

As the sea levels rise, Australia will be under considerable pressure to accommodate very large numbers of international climate change refugees, many of whom will be likely to be experiencing dislocation trauma.

Planning and preparation

Extensive work is needed by all stakeholders to prepare for the direct and indirect impacts of climate change. This includes state planning changes, for example, to facilitate improvement in urban planning to reduce the need to travel, to require certain levels of energy efficiency in private and commercial buildings, around water usage and the provision of health services to respond to new health challenges. Local government needs to prepare for localised events, such as flooding and emergency responses. Business needs to prepare for future impacts, such as regulations around the energy efficiency of products, a rise in transport costs and changing demands for goods. Households need to have information and guidance about how best to prepare for direct and indirect impacts of climate change.

Personal factors

The capacity to adapt to climate change will vary between people. Those with good resources: mental and physical health, a steady medium to high income and savings, strong networks and social capital, secure employment and housing and high levels of education, will find it easier to make necessary adjustments. Those who have vulnerabilities in one or more of these areas will find it more difficult to make adjustments, while those with few resources may find they move to a position of greater disadvantage, insecurity and exclusion from society.

Once one or more disadvantages become entrenched, it becomes harder and expensive for society to turn things around for families and communities. There is a risk of inter-generational transmission of disadvantage and the development of an under-class, not present to any extent in Australia to date. It therefore becomes important to put in place measures to prevent this diminution of the well-being of people and locations.

Disadvantage is complex and people are rarely disadvantaged on one dimension. Therefore their status of already being vulnerable will compound their difficulties in adapting to climate change. For example, those already disadvantaged may live in low quality or temporary housing (such as a caravan) which is more likely to be subject to the storm damage which will arise more frequently with climate change. Financially struggling households may have inadequate or no insurance cover. These problems, with few savings on which to draw, may push the household to even less secure, poorer quality housing or create homelessness.

Changes in the climate will lead to changes in arable land and water shortages and will lead to an increase in the price of food and water. A higher proportion of a household's disposable income will need to be spent purchasing these items. This will create greater difficulties in households where the income is already committed. Those people with poor health or who are aged will require additional assistance to overcome other potential health risks such as higher temperatures and an increase in spread of vector borne diseases. Assistance will be needed for psychological stress arising from lifestyle changes and hardships. While multiple barriers compound adverse impacts such as isolation and disadvantage, providing resources and facilitating personal control and community connections can also produce compounding positive impacts, where positive change in one dimension can impact good changes in other dimensions through positive chain effects (Rutter 2000).

Adaptation challenges identified in the July 2008 Western Port report

The report by Kinrade and Preston (2008) identified many challenges arising because of climate change, particularly those which relate to direct physical impacts. A brief overview is given of these. Consideration was given in the report to two time periods, 2030 and 2070. The identified impacts were:

- Coastal inundation – sea level rises and storm surges
- Intense rainfall and inland flooding
- Changes to fire weather conditions
- Changes to average and extreme temperatures
- Changes to average rainfall

The average range of change for each of these issues was defined in the report. Some of these are summarised in Table 2.1. The point from which the change is measured is not clear in the report, however, it is assumed that the beginning point for both 2030 and 2070 is from the time of reporting (June 2008).

Table 2.1: Examples of biophysical changes due to climate change

Average levels of biophysical change in the Western Port region	2030	2070
Sea level rise	6 to 17 cm	15 to 49 cm
Storm surge of sea levels (presently, 1 in 100 years)		1 in 1 year to 1 in 4 years
Storm surge - land inundation area	4% to 15% increase	16% to 63% increase
Extreme rainfall (e.g. 2 hour event)	Increase in rain of 16% to 25%	Increase in rain of 20% to 70%
Fire e.g. increase in forest fire risk days (presently, 9 to 12 days annually)	Increase of 1 to 2 days annually	Increase of 2 to 7 annually
Temperatures - average	Increase by 0.5°C to 1.1°C	Increase 0.9°C to 3.5°C
Temperature – extreme (presently, 1 day per year over 40°C)	Increase in 1 to 2 days a year over 40°C	2 to 5 days a year over 40°C
Average annual rainfall	Reduction of up to 4%	Reduction of up to 23%

Source: Kinrade & Preston 2008, p. iii & iv

The size of these average changes may be underestimated in this report. For example, the average temperature change has now reached 0.8°C (IPCC 2007a). On 7 February this year, the temperature site at Laverton, near Melbourne, recorded a new maximum temperature of 47.5°C, 2.5°C higher than the previous record set in 1983 (Karoly 2009). This temperature occurred after three days of high temperatures unprecedented in 154 years of Melbourne observations, anthropogenic climate change said to be a likely important contributing factor (Karoly 2009).

Significant change in rainfall patterns has already occurred in at least one locality in the Mornington Peninsula. At this site the annual rainfall has steadily reduced to just under a 50 per cent reduction in the rainfall of 20 years ago (anecdotal evidence).

Kinrade and Preston (2008) note that how these climate changes will be experienced and the extent of the impact will depend heavily on the localised topography as well as the locations of population and other infrastructure. Thus the report provides details about localised conditions in each of the Shire areas.

3. The extent and location of disadvantage and social exclusion

The extent, and residential location, of eight groups of people at risk of social exclusion were examined for the LGAs located around Western Port Bay. These groups are:

- People over 65 years of age
- Lone parent families with children under 15 years of age
- Lone parent families with children under 15 years of age who have a gross weekly income less than \$1,000
- People over 15 years receiving unpaid disability assistance
- Unemployed men aged 25 to 64 years
- People aged 25 to 44 years who do not have a post-school qualification
- Households in the private rental market
- Indigenous Australians

These groups represent many of the people who are at risk of social exclusion and likely to have particular difficulties in adapting to climate change. The location of Indigenous Australians is not mapped but discussed, due to low numbers in the Western Port region. A more detailed analysis could also include the location of new migrants/refugees, all unemployed people and those with poor physical and mental health who are not included in the group aged over 65 or receiving unpaid disability assistance. However, these additional groups are in small numbers in the studied LGAs and many of the issues they may face are not likely to significantly diverge from the eight groups listed above. While new migrant/refugee numbers are not high in Western Port LGAs, there are some settlements of new migrants developing in Casey. This is likely to increase in the coming years if Australia's high migration rate continues as planned and the Victorian Government encourages settlement in the greater Melbourne metropolitan area, pushing out the urban boundary as is presently the case.

The maps which follow show the concentrations of the above listed groups of people at the Collector District level (approximately 200 dwellings in urban areas and slightly less in rural areas) within the Western Port LGAs in comparison with the Melbourne Statistical Division (MSD), as at 2006.

People over 65 years of age

Table 3.1 shows the size of the population who are 65 years and over in each of the LGAs.

Table 3.1: People 65 years and over and 85 years and over in the study LGAs

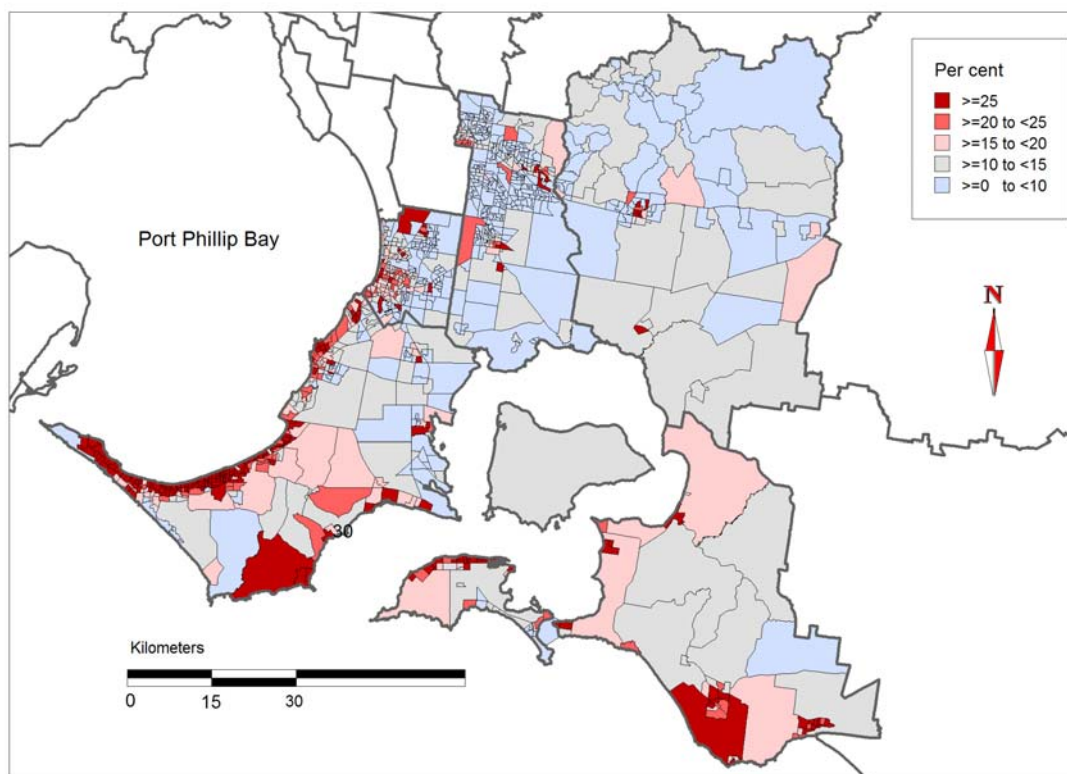
LGA	No. 65 years and over (Per cent of total)	No. 85 years and over (Per cent of those 65 years and over)
Mornington Peninsula Shire	27,176 (19.8%)	3,235 (11.9%)
Frankston City	15,404 (13%)	1,939 (12.6%)
Casey City	17,194 (7.9%)	1,617 (9.4%)
Cardinia Shire	5,607 (7.9%)	620 (11.1%)
Bass Coast Shire	6,174 (23%)	616 (10%)
Total	71,555	8,383

Source: ABS 2006a

This group represents 13.3 per cent of the population in Australia and 13 per cent in the MSD. Bass Coast Shire has a high proportion of the population in the age group 85 years and over, having the third highest median age in Victoria LGAs. Mornington Peninsula Shire also has a high proportion of older residents. These figures are likely to underestimate the total number of people 65 years and over in the Mornington Peninsular Shire and the Bass Coast Shire at any one point of time, especially over the summer holiday season because of the high second home and visitor numbers in these Shires.

Figure 3.1: Proportion of people 65 years and over in comparison with the MSD average

Proportion of persons age 65 and over; Collection Districts for the Local Government Areas of Casey, Cardinia, Frankston, Mornington, Bass Coast and French Island, 2006.



Source: Australian Bureau of Statistics, 2006 Census, Basic Community Profile data

Note: the proportion of persons aged over 65 years in the Melbourne Statistical Division (MSD) was 13 per cent at the time of the 2006 Census. Collection Districts (CDs) coloured pink or red were above the MSD average. CDs coloured blue were below the MSD average.

The size of the aged and older aged population in Australia will increase in the next few decades, with the proportion of aged 85 years and over projected to increase from 1.6 per cent of the population in 2007 to between 4.9 per cent and 7.3 per cent in 2056. Figure 3.1 shows the concentrations of people 65 years and over in comparison with the MSD. Areas with high levels of aged persons (over 20 per cent of the residents) are present in the Mornington Peninsula and Bass Coast Shires, and to a lesser extent in Frankston City.

Those in the more senior group of aged people (85 years and older) are particularly likely to experience difficulties adapting to climate change. They commonly have health frailties or disability, and may already experience poor accessibility and isolation as public transport services are often poor in the Western Port LGAs.

Lone parent families with children under 15 years of age

Cardinia and Casey are two of the top three Victorian LGAs with the highest proportion of children (in single and two-parent families). Frankston City, Mornington Peninsula and Bass Coast Shires have high proportions of lone parent families, when compared to the Melbourne Statistical Division average of 19 per cent, which is just below the Australian average of 20 per cent (ABS 2007). This proportion of lone parent families has grown rapidly in the past decade, especially in the City of Frankston.

Table 3.2: Total number of lone parent families in each studied LGA and their proportion of total number of families in the LGA

LGA	Numbers of lone parent families	Proportion of total families in LGA 2006 (& 1996)
Mornington Peninsula Shire	3,719	23.2% (21.1%)
Frankston City	4,408	28.3% (22.4%)
Casey City	6,520	19.8% (16%)
Cardinia Shire	1,569	19% (15.2%)
Bass Coast Shire	721	26.4% (22%)

Source: ABS, 2006b

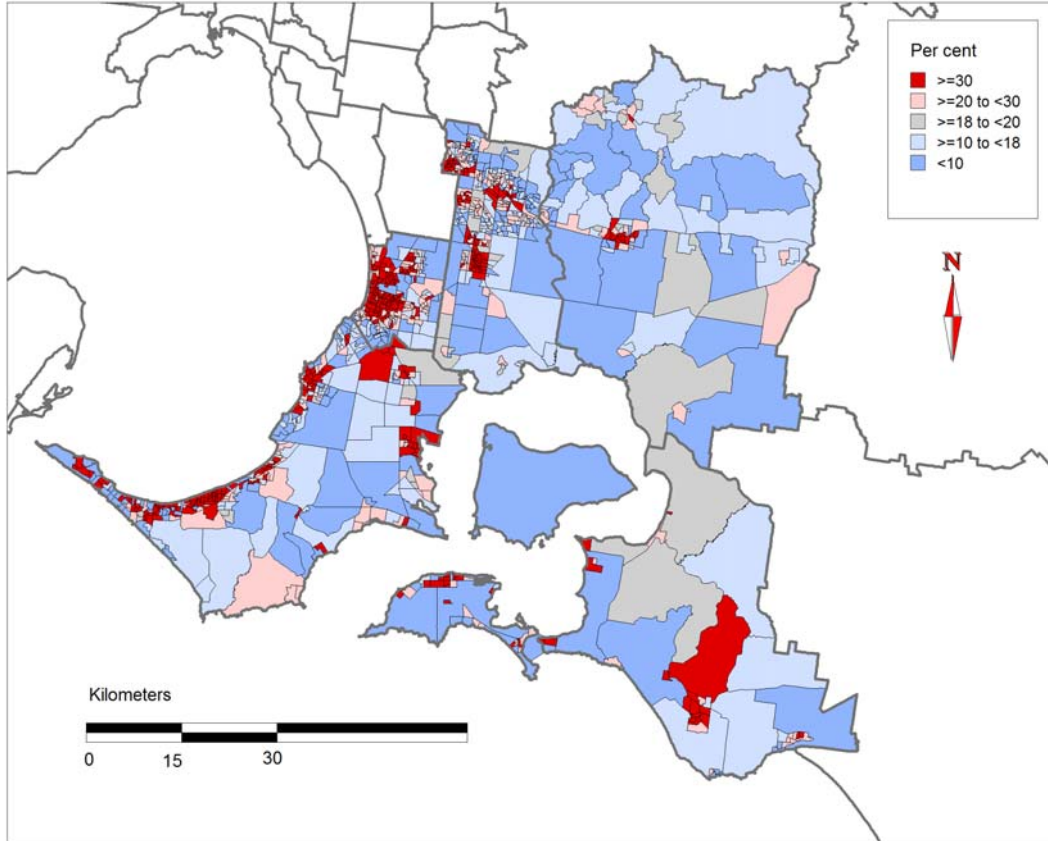
Figure 3.2 shows the proportion of lone parents with children less than 15 years old in comparison with the MSD average. The Mornington Peninsula Shire and Frankston City Council have a number of areas where 20 to 30 per cent are lone parent families. Larger proportions of over 30 per cent are present in Mornington Peninsula and Bass Coast Shires, and the Cities of Frankston and Casey, with an area in Cardinia Shire.

Most lone parent families with children under 15 years of age, are mothers (87 per cent in 2006). Their principle source of income is government pensions and allowances (for 61 per cent in 2003–04) (ABS 2007). About a quarter (23 per cent) receive some income from wages or salaries and just over half (51 per cent) receive some child support or maintenance payments which is over ten dollars a week (ABS 2003–04, de Vaus 2004). Between 1997 and 2006 the proportion of lone parents who were in the labour force (i.e. either employed or looking for work) increased from 52 to 62 per cent, largely reflecting an increase in the proportion of lone mothers in the labour force.

The average weekly equivalised disposable household income for lone parents was below the average two parent household: lone mothers with \$364, lone fathers with \$429 and two-parent households with \$534. Wealth, or average net worth for lone parents reflects much greater disadvantage, with female lone parents having about four times less wealth than two parent families. The lone-parent group has a much higher representation in the housing renting market, with 65 per cent of lone mothers and 56 per cent of lone fathers renting, in contrast to 21 per cent of two-parent families.

Figure 3.2: Proportion of families with children less than 15 years who are lone parent in comparison with the MSD average

Proportion of all families with children less than 15 years old which are lone parent families; Collection Districts for the Local Government Areas of Casey, Frankston, Mornington, Cardinia, Bass Coast and French Island, 2006



Source: Australian Bureau of Statistics, 2006 Census, Basic Community Profile data

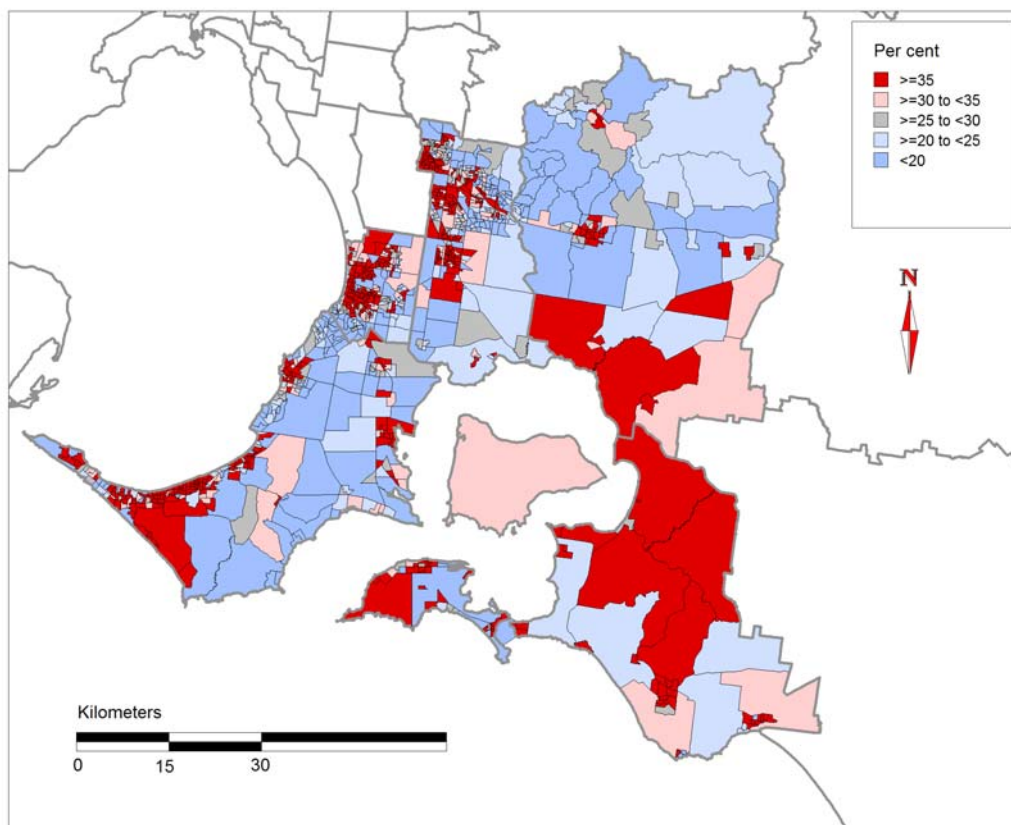
Note: the proportion of all families with children aged less than 15 years which were lone parent families the the Melbourne Statistical Division (MSD) was 19 per cent at the time of the 2006 Census. Collection Districts (CDs) which are coloured pink or red were above the Melbourne average. CDs coloured blude were below the MSD average.

Lone parent families with children under 15 years of age who have a gross weekly income less than \$1,000

A sub-group of lone parents with young children who have a gross weekly income less than \$1,000 will have even greater likelihood of experiencing adaptation difficulties. Melbourne Statistical Division has 28 per cent of sole parent families with children 15 years and under, with a gross income less than \$1,000 per week. Figure 3.3 reveals a different distribution of this group to the total group of lone parents. There is a wide scattering throughout the LGAs, with many collection districts having over 30 per cent of lone parent families below this income threshold.

Figure 3.3: Proportion of lone parent families with a gross weekly income below \$1,000

Proportion of families with children and lone parent families with gross weekly income of less than \$1,000, Collection Districts for the Local Government Areas of Casey, Frankston, Mornington, Cardinia, Bass Coast and French Island, 2006



Source: Australian Bureau of Statistics, 2006 Census, Basic Community Profile data

Note: the proportion of families with children and lone parent families with a gross weekly income of less than \$1,000 for the Melbourne Statistical Division (MSD) was 28 per cent at the time of the 2006 Census. Collection districts coloured pink or red were above the MSD average. CDs coloured blue were below the MSD average.

Consistent with the low level of economic resources of many lone parent households, they were more likely than couples to report difficulties in the previous 12 months due to a shortage of money. These ranged from the relatively common 'could not pay electricity/gas bills on time' (reported by 51 per cent of lone parents and 20 per cent of couples) to the least common 'unable to heat home' reported by 8 per cent of lone parents and 2 per cent of couples. In Australia, those receiving lone parent benefits are likely to remain with this dependence for at least 12 years (de Vaus 2004) a factor which usually means experiencing relative poverty for a long duration (Ridge 2002).

People over 15 years receiving unpaid disability assistance

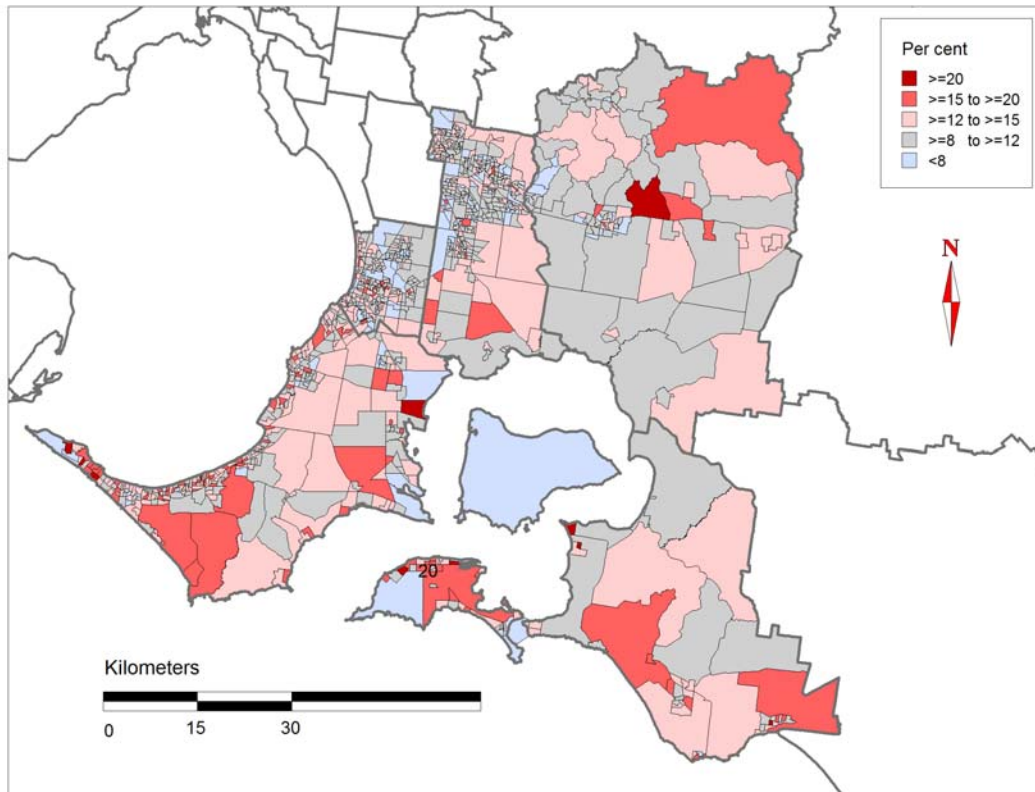
The term unpaid disability assistance refers to people who, in the two weeks prior to Census Night, spent time providing unpaid care, help or assistance to family members or others because of a disability, a long-term illness or problems related to old age.

This includes people who are in receipt of a Carer Allowance or Carer Payment. It does not include work done through a voluntary organisation or group (ABS 2006c). This group of people therefore reflect the extent of need of those still in a household.

Figure 3.4 shows the density of locational needs compared with the MSD, where the average number of households where care was provided is 10 per cent.

Figure 3.4: Proportion of people over 15 years receiving unpaid disability assistance

Proportion of persons aged over 15 years receiving unpaid disability assistance; Collection districts for the Local government Areas of Casey, Frankston, Mornington, Cardinia, Bass Coast and French Island, 2006



Source: Australian bureau of Statistics, 2006 Census, Basic Community Profile data

Note: the proportion of persons (aged 15 years and over) who received unpaid disability assistance for the Melbourne Statistical Division (MSD) was 10 per cent at the time of the 2006 Census. Collection Districts (CDs) which are coloured pink or red are above the Melbourne average. CDs coloured blue are below the MSD average.

Unemployed men aged 25 to 64 years

According to the 2006 census, 5.2 per cent of Australians were unemployed. While Cardinia and Mornington Peninsula Shires have below average levels of unemployment, Frankston City and Bass Coast Shire have above average levels.

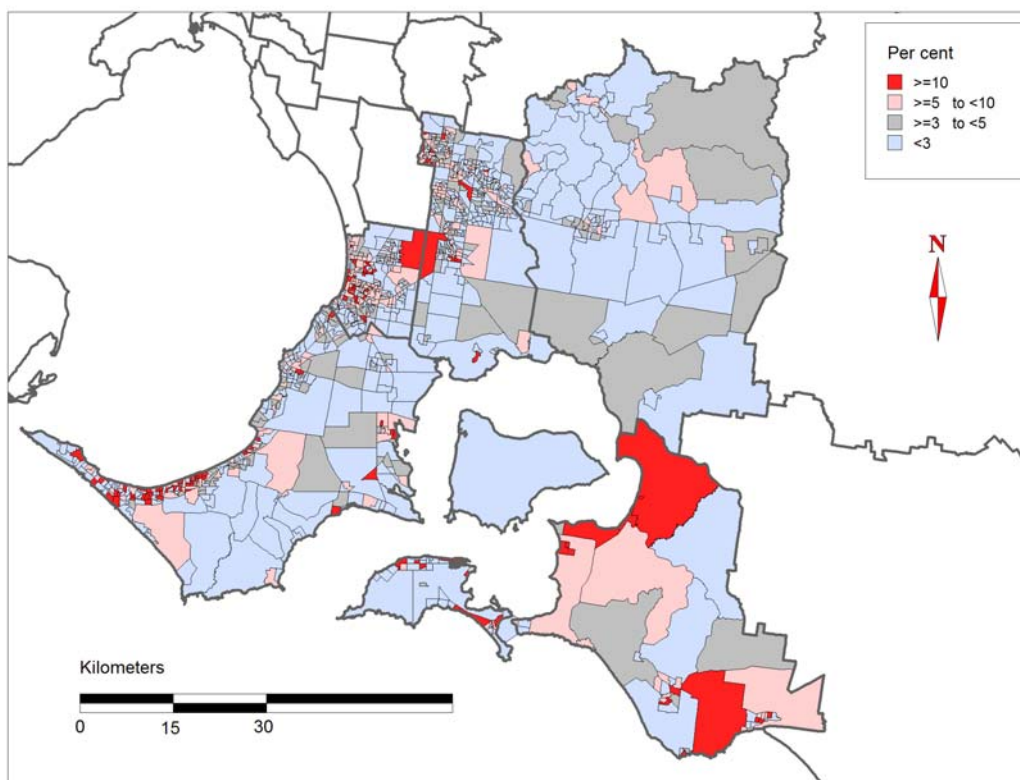
Table 3.3: Percentage of unemployed people in each LGA

LGA	Level of unemployment
Mornington Peninsula Shire	4.7%
Frankston City	6%
Casey City	5.3%
Cardinia Shire	4.2%
Bass Coast Shire	6.1%

Source: ABS 2006b

Figure 3.5: Proportion of men aged 25 to 64 years who were unemployed

Proportion of men aged 25 to 64 years who were unemployed; Collection Districts for the Local Government Areas of Casey, Frankston, Mornington, Cardinia, Bass Coast and French Island, 2006



Source: Australian Bureau of Statistics, 2006 Census, Basic Community Profile data

Note: The proportion of men aged 25 to 64 years who were unemployed for the Melbourne Statistical Division (MSD) was 4 per cent at the time of the 2006 Census. Collection Districts (CDs) which are coloured pink or red are above this average. CDs coloured blue are below the MSD average.

The distribution of men aged 25 to 64 years who were unemployed in 2006, as shown at Collector District level, is shown in Figure 3.3. Pockets of high unemployment (over ten per cent) can be seen in the Shire of Mornington Peninsula, and particularly Bass Coast Shire and the Cities of Frankston and Casey, at a time when average unemployment for men in this age group in Melbourne was four per cent.

Since the 2006 census, the levels of unemployment and underemployment (a desire to work longer hours than is available) have increased due to the economic downturn (Table 3.4). In May 2009, the unemployment rate was 5.7 per cent and the under-employment rate at 7.7 per cent. Thus, unemployment will have risen in the Western Port region, especially in areas where high levels of unemployment previously existed.

Table 3.4: Unemployment and under-employment rate according to age, in May 2008 and May 2009

Age group	Unemployment rate %		Underemployment rate %	
	May 08	May 09	May 08	May 09
15-24	8.4	12.0	10.9	14.3
55+	2.2	2.8	4.2	5.5
Total	4.1	5.7	5.9	7.7

Source: ABS 2009

As well as under-employment, the current recession is characterised by high levels of youth unemployment. In the year between March 2008 and March 2009, male 15 to 19 year olds not in full-time education or employment increased from 12.8 per cent to 17 per cent, while the change for women in this age group was lower, from 15.5 per cent to 16.2 per cent (Perch, McNevin & Nelms 2009).

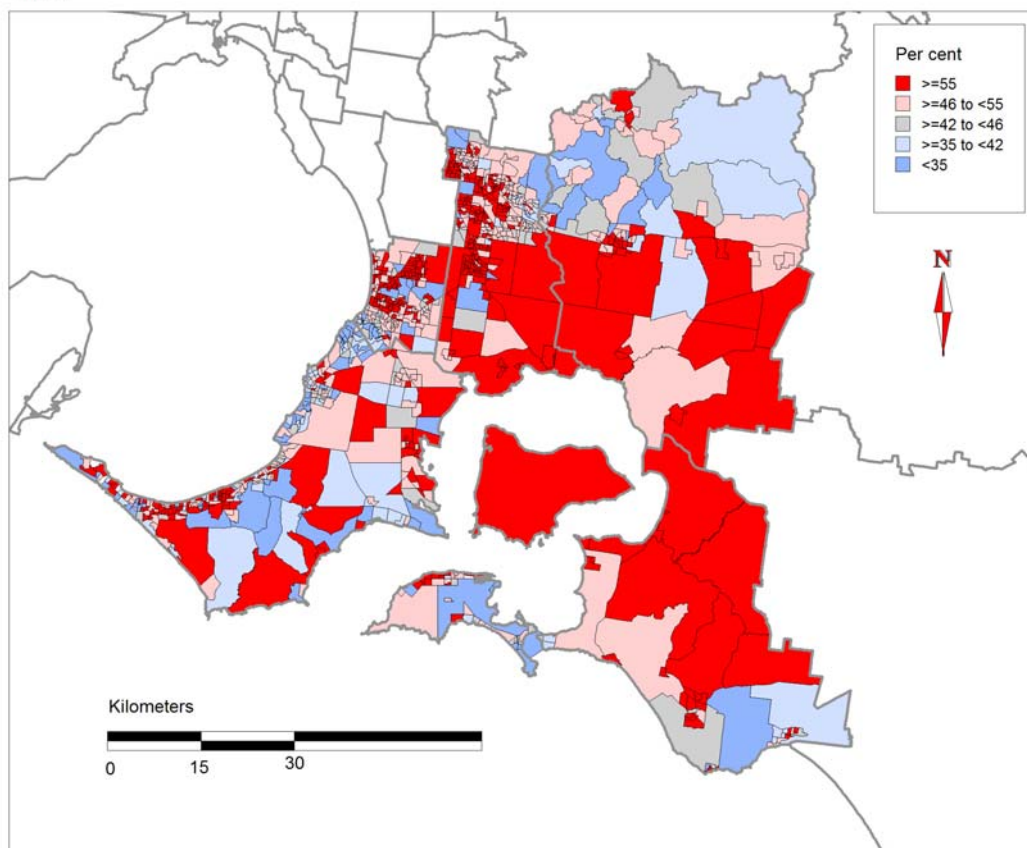
People aged 25 to 44 years who do not have a post-school qualification

Vulnerability to unemployment is increased for those who have lower skill levels and thus less flexibility in job options. Therefore changes in employment conditions, such as an economic downturn, and the changes in pricing structure as could occur with a carbon price, would increase the risk of job loss for those with lower skills.

Figure 3.6 shows the proportion of people aged 25 to 44 years who do not have a post school education in comparison with the Melbourne Statistical Division which has 44 per cent of people in this category. Rural areas are particularly over-represented as having low post school qualifications, and agriculture has experienced recent job losses (ABS 2009). A second area of higher risk for low skilled workers is in manufacturing, which has experienced the biggest job losses over the year to June 2009, with a loss of 77,000 jobs.

Figure 3.6: Proportion of people aged 25 to 44 years who do not have a post-school qualification

Proportion of persons aged 25 to 44 years who do not have a post-school qualification; Collection Districts for the Local Government Areas of Casey, Frankston, Mornington, Cardinia, Bass Coast and French Island, 2006.



Source: Australian Bureau of Statistics, 2006 Census, Basic community Profile data

Note: the proportion of persons aged 25 to 44 years with no post-school qualification in the Melbourne Statistical Division (MSD) was 44 per cent at the time of the 2006 Census. Collection districts (CDs) coloured pink or red were above the MSD average. CDs coloured blue were below the MSD average.

Households in the private rental market

Most households will be able to fairly comfortably absorb the extra expenses involved with energy saving improvements in the home. However, due to up-front costs to address energy savings, many low income households will find it considerably difficult to fund these changes. This problem is particularly compounded in the situation of low income households in the private rental market, low income and renting commonly being associated (Randolph & Holloway 2004).

Low-income private tenants already face rising rents and housing affordability stress in the present tight housing market (BSL 2007). These households are also over-represented among those who are unable to pay their utility bills (Committee for Melbourne 2004). Low income households also often live in low-quality or substandard housing, issues common in the private rental market. Additionally, renters face the split incentive barrier.

Landlords have limited incentive to institute energy efficiency measures because they gain no financial benefit from reduced energy bills. While renters will receive the benefit, they are unlikely to be able or willing to pay the considerable up-front cost, particularly when they have limited security of tenure. There is also the risk that improvements to the property, whether undertaken by the tenant or the landlord, may lead to a rise in the rent. At present it is unclear how such families can be assisted to accommodate to these changes and how the costs of these changes should be distributed.

Occupied rental properties in Australia in 2006 represented 27.2 per cent of the housing stock, or 25 per cent in Melbourne. The five Western Port LGAs have lower than average occupied private rental properties. The City of Casey and Shire of Cardinia, in contrast have a much higher than average proportion who are purchasing their homes. Casey City has 52.5 per cent purchasing and Cardinia Shire 48.3 per cent, compared to the Australian average of 32.2 per cent. This reflects the new housing developments in these LGAs.

Table 3.5: Number of rental properties and proportion of total tenures

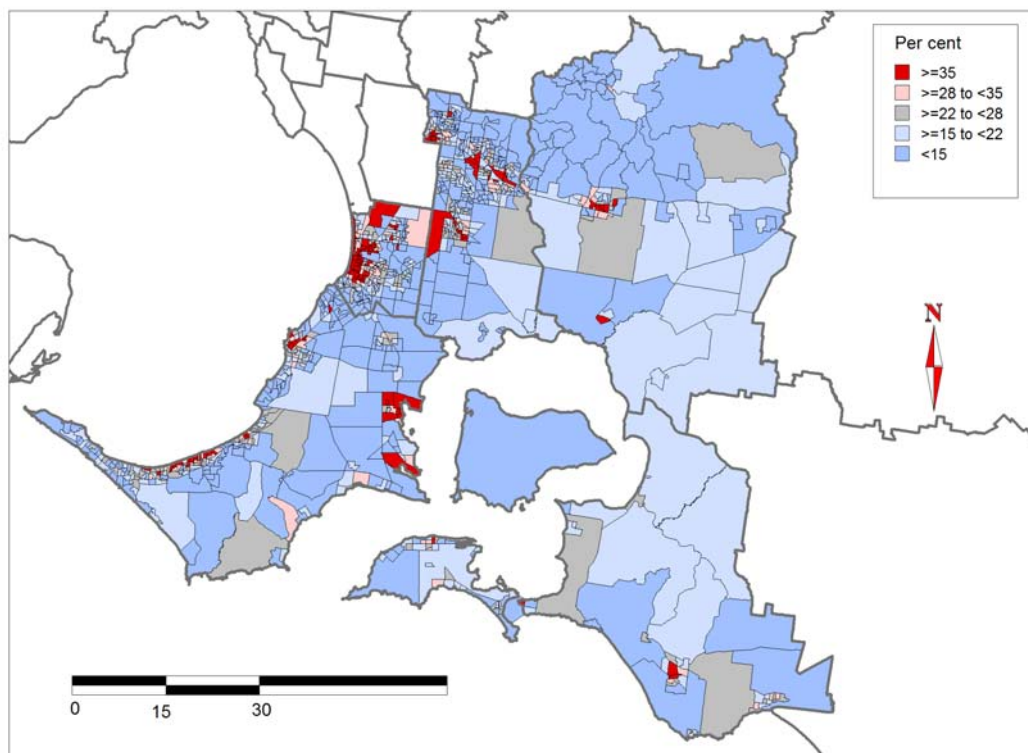
LGA	Number of rental properties	Percentage of tenure type	Percentage paying a mortgage
Mornington Peninsula Shire	9,663	18.3%	35.0%
Frankston City	10,876	23.8%	40.3%
Casey City	12,507	17.5%	52.5%
Cardinia Shire	3,383	17.2%	48.3%
Bass Coast Shire	2,338	20.8%	26.1%

Source: ABS 2006d

Figure 3.7 shows the location of rental properties in comparison with Melbourne. While the numbers tend to be comparatively low, they tend to cluster in the Cities of Frankston and Casey and pockets in the Mornington Peninsula Shire.

Figure 3.7: Proportion of households in occupied private dwellings who pay rent

Proportion of households (in occupied private dwellings- OPDs) paying rent for the Local Government Areas of Casey, Cardinia, Frankston, Mornington, Bass coast and French Island, 2006



Source: Australian Bureau of Statistics, 2006 Census, Basic Community Profile data

Note: The proportion of households paying rent (OPDs) in the Melbourne Statistical Division (MSD) was 25 per cent at the time of the 2006 Census. Collection Districts (CDs) coloured pink or red were above the MSD average. CDs coloured blue were below the MSD average.

Indigenous Australians

Only small populations of Indigenous Australians live in the studied LGAs, from 0.4 to 0.6 per cent of the total population. This is about average for Victoria but well below 2.3 per cent for all of Australia. However, the Indigenous community is experiencing rapid growth with an increase in nearly 11 per cent in Victoria between 2001 and 2006 (ABS 2006e).

Table 3.6: Indigenous people in the Local Government Areas

LGA	No. of Indigenous Australians	Percentage of total persons in region
Mornington Peninsula Shire	638	0.5%
Frankston City	749	0.6%
Casey City	1,164	0.5%
Cardinia Shire	235	0.4%
Bass Coast Shire	158	0.6%

Source: ABS 2006e

4. Options to facilitate adaptation by vulnerable people

Adaptation to climate change takes place through adjustments to both reduce vulnerability and enhance resilience (Adger 2007). Adaptation occurs in physical, ecological and human systems and is an on-going process. The process is complex with many impeding factors such as the limits of ecological adjustment, the lack of technological development, financial resources, and a lack of information and cognitive understanding of the issues. The latter is particularly relevant as responses require individual and social perceptions of risk, as well as opinion and values which influence judgement and decision-making. While most Australians have heard about climate change, the need to adapt is not viewed as the 'here and now' or seen as a pressing personal priority (Lorenzoni & Pidgeon 2006). This is especially so for those with other more immediate issues such as struggles with a heavy mortgage or ill health. Events such as the recent bushfires in Victoria and the northern floods may be a means to form stronger connections with climate change for people.

The options for vulnerable people to maximise adaptation to climate change largely centre on the following:

1. Reduce the extent of adaptation needed by maximising the reduction of GHGs.
2. Enact good government policy which facilitates adaptation and has strong equity principles
3. Maximise the capabilities of vulnerable people
4. Provide primary, secondary and tertiary adaptation strategies
5. Planning for crisis and emergency interventions

Maximising the reduction of GHGs

Despite knowledge of the problem and much discussion and target setting, GHGs continue to rise in Australia, at the rate of 1.6 per cent each year, from September 1998 to March 2009 (Wong 2009). Without a far stronger response to GHG reduction than is currently present, the adaptation task will be extremely large and extremely difficult with the chances of a successful adaptation diminishing as the costs increase (Adger 2007). The federal government is aiming for a 450 ppm (parts per million) target for greenhouse gasses as one which will prevent a two degrees rise in temperature. However, greenhouse gas stabilisation at 450 ppm would result in about a 75 per cent chance of the temperature rising above two degrees Celsius and about an 18 per cent chance of rising above three degrees Celsius. To achieve 450 ppm developed countries would need to reduce their 1990 levels of greenhouse gases by 25 to 40 per cent by 2020 (IPCC 2007b) or indeed by 2015, as predicted by Karoly (2009).

Good government policy with strong equity principles

Adaptation policy at all three levels of government, offers the opportunity for government to provide innovative solutions and opportunities for business and the community. However this will require long-term strategic planning and considerable resources as well as a range of policy initiatives to provide information, support and incentives while ensuring equality of capability to adapt. The government response includes:

reducing the vulnerability of people and infrastructure, providing information on risks for private and public investments and decision-making, and protecting public goods such as habitats, species and culturally important resources (Adger 2007, p.732)

and the resilience and adaptation capacities of local population groups.

The term 'mainstreaming' is used to refer to the integration of the need to respond to climate change or adaptation into aspects of government policy such as water management, emergency and land-use planning (Agrawala 2005, referred to in Adger 2007). This needs to be embedded into macro and micro policy, broad development strategies, institutional and organisational structures, project design and implementation. Adger acknowledges that there are to date few examples of good mainstreaming and there are many barriers to achieving this. These include an awareness of relevance in decisions, uncertainty about climate change information, the fragmentation of governments and their separation from other agencies and the need to trade-off between climate change adaptation needs and other government objectives.

Government policy and associated legislation will need to address many issues, some examples of which are below.

Energy

People and companies will need to move away from a reliance on infrastructure which emits high levels of greenhouse gasses, to alternative products and practices (such as coal power generators and oil-based transport). This behavioural change can only be achieved through broad policy enactment that integrates economic, social and environmental policy. The confluence of policy outcomes identified earlier in this report will need to take on far greater importance. Economic policy is needed to improve the supply side of energy generation from sustainable energy sources such as solar and wind power. At the same time social policy is needed to influence the demand side through reducing the demand for products with high embedded levels of greenhouse gases in their production or operation and through energy efficiency gains. Thus a highly integrated 'push/pull' policy response is required.

These policies will often require a paradigm change where modification in behaviour will need to occur quickly, but also within the context of uncertainty. This will require policy development in a new context where strong leadership is needed by government. The speed of change requires learning by doing and the accompanying permission for some likely failures. Resources will need to be freed to achieve this change and a timeframe a lot longer than a political term is required. At present there is a public willingness to act which is outstripping governmental response. A survey in 2004 in south-east England revealed that the overwhelming majority of people were willing to personally do more to change their way of living, cutting pollution and their water use (Giddens 2006, p.158). Similar responses have been found in Australia (Climate Institute 2007).

Rebate/grants programs

Large scale, comprehensive and co-ordinated grant programs to assist low income households move to a sustainable energy source would not only directly assist with the reduction of greenhouse gasses, it will enable low income families to participate in climate change solutions while reducing their energy bills, at least on a short-term basis. While the federal government has introduced small programs for solar hot water and solar electricity generation, income cut-off points are quite high and a high demand has led to early sunset clauses on the schemes. The Victorian government offers some limited programs which provide small rebates for solar and gas household energy systems and housing ceiling insulation. The Victorian Energy and Water Task Force offers a free energy audit and about \$300 worth of energy savings installed in the home. While a valuable initiative, it is only very small, completing around 5,500 retrofits since commencement in 2003.

Unfortunately many low income houses are not able to take up most grant programs (the Energy and Water Task Force is unusual in that it offers a free program), the household capital contribution being beyond the capacity of most low income households. A system of

low-interest, no-interest green loans, or loans re-payable from cost savings from the new renewable energy facility, is available on a limited scale through the federal government and some banks. An extension of this scheme would be of great value.

These programs can be contrasted with a far more comprehensive approach being taken in the UK. For example, a full roll-out of Smart Meters for households and small businesses for both electricity and gas meters has commenced (Department of Energy and Climate Change 2008). A more limited Smart Meter Scheme for electricity only, is being introduced in Victoria at present. This will allow consumers to have more information about, and therefore control over, their energy use. The UK has also extended their Warm Front Scheme, increasing funding by £174 million and brought forward another £50 million in spending to assist vulnerable households with heating and energy efficiency. A £1 billion programme of energy efficiency measures is to be undertaken.

Improved and densification of urban infrastructure

Improvements to transport and urban planning would assist adaptation as well as reduce emissions. There is a growing interest in this field to address carbon emissions, growing traffic congestion problems, keeping the city green, population growth and reducing infrastructure costs related to issues such as the provision of public transport to lower density outer suburbs of Melbourne. The thinking entails increasing the density of housing to 'low-rise' of six to eight storeys, better use of public space and the provision of green space, mixed use zoning to reduce the travel to work time and increase the walk-ability of urban spaces and the provision of higher density corridors around public transport corridors.

Water

Melbourne's water storage dams are at a critically low level, a supply which encompasses most of the LGAs around Western Port. Diversification of water source is needed through both centralised and decentralised water collection systems where water usage is matched with water quality. The city itself could become a water source through small collections from household and industry roof catchment. Water can be accessed through use of stormwater, sewer mining, recycled wastewater and desalinated water. Government policy is needed to under-pin inter-agency collaboration and public/private engagement in the provision of adequate water supplies, as well as address the many other adaptation needs which will become increasingly apparent in the next decade.

Limited drought relief for farmers and small rural businesses in the form of financial assistance and the provision of counselling services has been available for a number of years (Australian Government 2008). Of prime importance will be the provision of information about the impact of climate change and the adaptive choices available to rural farmers and dwellers, as well as the provision of resources to facilitate behaviour change.

Resources to promote renewable energy and green jobs

President Obama has stated that he will provide \$150 billion to support private sector efforts to develop and commercialise wind, solar, geothermal and other renewable energy generation. Such investments will reduce domestic reliance on imported oil and improve national security and trade balances. It will also create millions of 'green-collar' jobs, this being variously reported as 2.5 million to 5 million jobs.

The COAG meeting in November 2008 gave attention to the need for skills and workforce development but no mention was made of the requirement for climate change related skills and jobs.

The Dusseldorp Skills Forum has commissioned work which found that deep cuts in emissions will not impact on employment, as a green economy will require 2.5 to 3.3 million new jobs in the next two decades (Hatfield-Dodds 2008). However, it is queried as to whether this will be new jobs or whether there will largely be a transfer of job skills needed, from old to new technologies (personal communication, Brain 2009).

What is needed is concerted action by government, business, unions and educational institutions to develop and implement new approaches to training and job development in the green industries. Such an approach will not only facilitate the up-take of renewable energy, it will keep energy costs down for vulnerable people and could be a localised source of job training and employment to build the capacities of people to respond to climate change and make a more successful adaptation.

Regulation

State governments have an important role to play in the provision of regulation to bring about reductions in GHG consumption and to promote adaptation. Regulation would assist the complex problem of adaptation by low income households in the private rental market, as discussed in the previous chapter. Policy which requires green star ratings for all rental properties and provides both information and incentives for landlords and renters to undertake housing improvements, is urgently needed (Sullivan 2008). The Victorian government is presently working on a policy to require the energy efficiency rating of houses to be revealed at point of sale or point of transfer if a rental property. However, there is a risk that this policy, without additional legislation which requires all properties including those offered for rent to be up-graded for energy efficiency, will exacerbate the problem of rent rises for low income renters.

Other areas of government policy

There are many other areas of government policy which would facilitate adaptation of vulnerable people. Some of these are listed below, the details of which are not examined in this discussion paper:

- The promotion and funding of research to inform and guide adaptation and particularly to develop new low carbon technologies
- Food and health safety management
- Strategic policy to ensure the needs of the Victorian population, for example, due to changes in supply/demand for import/export goods and agricultural products and food, particularly in response to the CPRS
- Monitoring and evaluation of the success of adaptation policy and enactment, and behaviour change.

Maximise the capabilities of vulnerable people

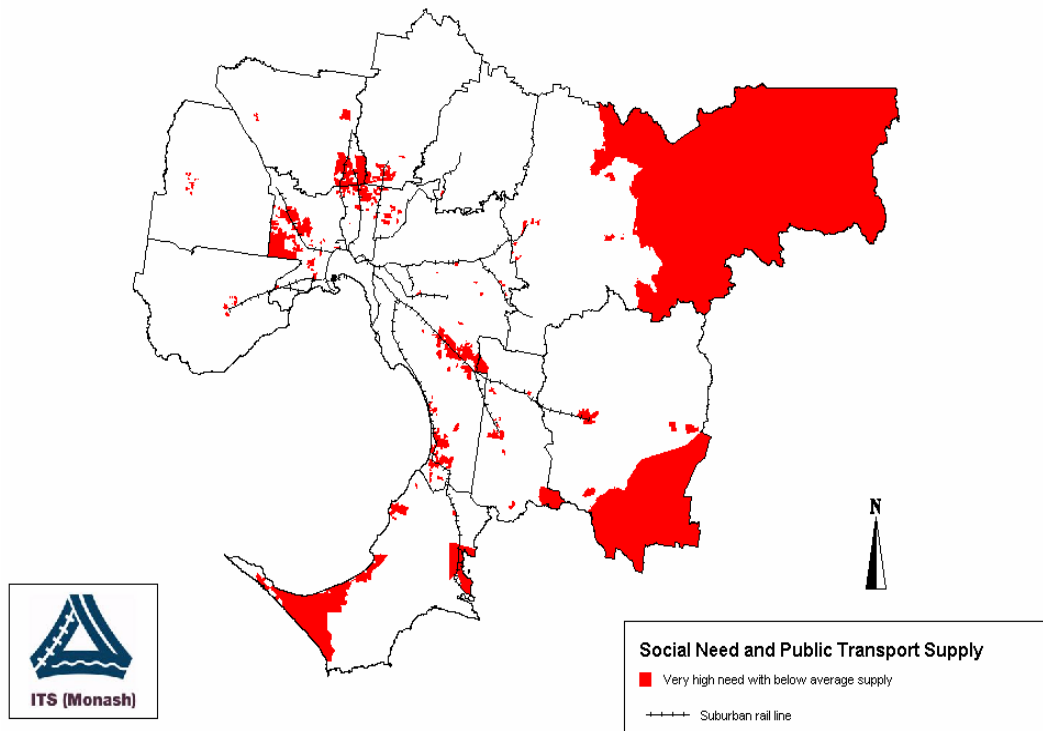
Factors which increase capabilities of vulnerable people will improve their ability to adapt to climate change. Two specific issues will be mentioned here which can be promoted through government policy, both of which have multiple advantages. As mentioned above, recent work on the important factors which facilitate social inclusion include the ability to be mobile and the ability to be connected to other people, specifically a strong sense of community and the presence of social capital.

The ability to be mobile

Mobility increases connections for people, whether it is networking for business or leisure, being part of a larger group in the community, accessing education and employment options or linking with services, such as health centres.

Such connections are important for social inclusion, building capabilities and improving well-being (Stanley et al. 2009, on-line, Stanley et al. 2011). Mobility choices are limited in many outer Melbourne suburbs and rural locations. Figure 4.1 illustrates the transport gaps identified in Metropolitan Melbourne, but excluding the Shire of Bass Coast, which is a rural LGA. These findings take into account social need (income), the availability of walk access to shops, and access to buses, trains and trams. Southern Peninsula and Cardinia Shires have large areas where mobility choices are limited, apart from car ownership.

Figure 4.1: Unmet travel needs in Metropolitan Melbourne



Source: Currie 2009

Some transport-disadvantaged Victorian households are ‘forced’ into car ownership in order to achieve mobility such that 20,831 metropolitan Melbourne households with a weekly income below \$500 run two or more cars (Currie & Senbergs 2007). This is a larger number of households than those who have no car ownership (16,357). Both of these groups are represented in the Western Port LGAs, particularly in the very high need areas represented in Figure 4.1. New residential land should be released with a transport plan.

Social policy to improve mobility and reduce emissions requires improved transport services, such as increased frequency and span of route bus services; new services; improved provision for users, such as three-hour tickets instead of two-hour tickets; regulatory reform, such as allowing members of the public on school bus services and improved system planning (Stanley & Stanley 2004). Improvements to facilitate the ability to walk and cycle are occurring but on a small scale and this needs considerable more resource allocation. Policy is needed to improve car occupancy rates and improve fuel efficiency (Stanley, Hensher & Loader 2009, on-line). Good urban planning should reduce the need to travel to reach services. For example, all railway stations should be surrounded by more intensive housing developments which include low-income housing and services.

New residential areas, such as are being established in Casey and Cardinia need to be planned for mobility needs prior to any commencement of buildings.

Such improvements would not only facilitate social inclusion but would assist vulnerable people to reduce the burden of rises in petrol due to a carbon price. Although petrol is excluded from the CPRS for the first three years, it is unlikely that that this will be extended. Transport accounts for 13.7 per cent of Australia’s greenhouse gas emissions, a proportion which is growing rapidly, with land transport accounting for 80 per cent of this.

Work undertaken by Unkles and Stanley (2008) reveals the spatial variation in carbon use for households with similar incomes. Table 4.1 illustrates the carbon footprint of households on a very low income within the Western Port LGAs, with a comparison of the inner LGA of Boroondara. Much of the explanation for this variance in carbon use appears to relate to the provision of public transport and urban design. In general, the further from the Central Business District, the higher the carbon expenditure of low income people, reflecting the diminishing public transport supply. In comparison with low income people in Melbourne, Cardinia Shire households have high carbon usage. However, neither Mornington Peninsula or Bass Coast Shires are in the highest carbon use range as recent research suggests that low income people do not travel outside the local area as much as those on a fringe suburb of Melbourne. The table includes the City of Boroondara to illustrate the point that people with low incomes tend to use public transport where it is available, in preference to expenditure on private vehicles.

Table 4.1: Carbon use by low income households in selected LGAs

LGA	Average range of carbon footprint for people within the LGA area who are on a very low income (Melbourne carbon use divided into six equal parts)
Cardinia Shire	33.3 to 34.9 (highest sixth)
Casey City	32.3 to 33.3 (second highest sixth)
Mornington Peninsula Shire	31.1 to 32.3 (third highest sixth)
Frankston City	31.1 to 32.3
Bass Coast Shire	31.1 to 32.3
Boroondara City	25.9 to 29.1 (lowest sixth)

Source: Unkles & Stanley 2008

Facilitate community connectiveness and social capital

The federal government has taken a simplistic view of equity, ground in a financially oriented perspective, which views the solution solely in terms of monetary redistribution to meet the direct costs arising directly from a carbon price. However, equality can also be viewed as the facilitation of participation and inclusion, and the development of broad capability to participate within the economy (Jayasuriya 2006). Equity principles could also consider issues such as self-respect, social norms, and opportunities to enhance social capital development, which will increase personal resilience and increase the ability to adapt to climate change, as well as the freedom to choose their goals (Jayasuriya 2006).

It is worth noting that perception by vulnerable people of barriers to adaptation in itself limits adaptation, even where there are capabilities and resources to act (Grothman & Patt 2005, Moser 2005).

Primary, secondary and tertiary adaptation strategies

Much can be done to assist householders adapt to climate change beyond state and federal government policies. Such assistance can be instigated by many agencies and organisations: local government, welfare organisations, voluntary groups such as Rotary, and business. Primary prevention refers to universal services which assist people to adapt early. Of particular importance is information which sets out the need for adaptation and assists people with understanding what can be done. Climate change communication has found to be best where there is a consistent and sound message coupled with making climate change personally relevant with practical advice (Adger 2007). Other schemes could include bulk purchasing where a reduced price can be achieved for items such as energy saving appliances. Secondary prevention refers to a targeted approach to assist with planning for those who are most vulnerable, while tertiary prevention approaches assist those already having difficulties paying for energy costs with moving to more cost effective energy sources.

Planning for crisis and emergency interventions

On a global scale, much of the planning for emergencies associated with climate change has been targeted to developing countries (Lynch et al. 2008a). Lynch and associates recommend a whole of government approach to emergency planning, which is integrated or mainstreamed with present emergency responses. As the temperature rises, the authors recommend it prudent to undergo a modest 'learning by doing' preparation for heavy rainfall events, droughts, hail and thunderstorms.

5. Building social capital and promoting community self-help

The issue of social capital and community strength was touched on in the preceding chapter. The importance of this in promoting resilience and building capacity to enable people at risk of social exclusion to adapt to climate change warrants a further discussion of the nature of these issues, leading to an understanding of how best to facilitate these in social policy. As noted by Adger (2003), human and social capital are key determinants of adaptive capacity and they are as important as levels of income and technological capacity.

However, capabilities vary greatly across different communities. Part of building capacity is to facilitate empowerment of communities through participation in decision-making. The local community is able to identify where assistance is needed, and given resources, a strong cohesive community can provide much needed information, support and connections.

The nature of social capital and community strength

The terms, social capital and community strength are used to refer to a range of related ideas and concepts. Not only do the definitions vary, the concepts merge, and their use in public policy has outstripped the research and empirical knowledge base around the concepts. The following definitions reflect many of the commonly understood notions within the concepts:

Social Capital refers to the development of reciprocity (the process of exchanging goods/services in a social relationship) social networks or participation and trust between people (Putnam 1993).

Community Strengthening occurs where a sense of neighbourhood develops between individuals, families and organisations. It happens when people become actively engaged in the community. They feel socially connected, may become volunteers or leaders, and a sense of community pride is established (Vinson 2004).

Like financial capital and human capital (education/training), social capital and community strengthening build resources, but in the form of personal and community capacity, which promotes personal well-being and builds the capacity to overcome adversity. Social capital is a semi-private issue which can be traded, invested in and inherited (Adger 2003). Community strength is a more public form of social capital which resides in the collective networks of individuals and communities.

Social capital

The current interest and literature on social capital commenced in the 1960s, and has grown greatly from the 1990s. The major founding theorists in the field are Bourdieu, Coleman and Putnam, who, while varying on specific points, essentially defined the field. Social capital now has international interest, with major organisations reflecting on the issue and its relevance extending to climate change adaptation, particularly in developing countries. The Australian Government now measures social capital as part of its broad statistical gathering, having reviewed and developed a raft of indicators (ABS 2006f).

Important variations between theoretical works include what is encompassed in the term social capital and whether it refers only to an individual issue or relates to a broader community concept.

For example, Cox (1995) talks about social capital and social cohesion. Giddens (1991) relates social capital to the concept of the third way or the development of institutional and cultural systems which enable access to social participation of all members of society.

Stone (2001) has a broader perspective on social capital where it is important to understand the structure, including type, size and spread of networks, as well as a need to understand the issues of trust and reciprocity. Different networks create different types of social capital (Stone, Gray & Hughes 2003):

- **Bonding social capital** develops trust and reciprocity in closed networks, such as the family and perhaps work, and assists the process of ‘getting by’ on a daily basis. Bonding generates closer, denser ties, but may lead to exclusionary practices.
- **Bridging social capital** spreads resources between networks, allowing people to ‘get ahead’ by accessing multiple networks and therefore resources and opportunities. Bridges are made between groups which are different, in age, social position, ethnicity, or other features. As bridging social capital is formed between more heterogeneous groups, the connection is more fragile but more likely to foster social inclusion, in contrast to bonding social capital which may increase social exclusion (Schuller, Baron & Field 2000).
- **Linking social capital** is created through networks with those in authority or who have power and who are useful for obtaining resources. They are commonly institutional connections between individuals and community groups which reach beyond community boundaries.

The development of social capital takes time and resources, and those with greater quantities of other forms of capital (human capital or education, financial and cultural capital) are in a better position and more motivated to create greater quantities of social capital.

Social capital and personal well-being

Most of the literature on social capital refers to the value of social capital in terms of how it can be used to obtain resources. Putnam argues that where social capital exists, there is better community functioning and well-being. Manderson (2005) points out that social capital facilitates eudemonic well-being, which can be described as personal growth and development, and positive interactions with others which builds self-acceptance and personal capabilities.

The role of the state in the creation of social capital

Social capital can be created and destroyed by structural forces and institutions (Mohan & Mohan 2002). However, there is little conversation in the literature about the role of the state in the creation of social capital, nor of the inter-relationships between the various forms of ‘capital’ beyond noting that ‘synergy’ is needed between government and society (Woolcock 1998). Crow (2004) notes, however, that governments are able to facilitate the growth of social capital by provision of a favourable environment for its growth, for example, improved safety through crime reduction, or better planning of housing developments. The development of social capital should sit alongside good government policy, complementing it and facilitating up-take of policy (Mohan & Mohan 2002). Thus, in terms of adaptation to climate change, both government policy is needed to enable and promote adaptation, together with the work of a community that is informed and in the best possible position to take advantage of opportunities and engage in self-initiated adaptation.

Community strengthening

A range of labels describe concepts around communities which are not definitionally distinct, such as community strengthening, community building and community capacity building. Black and Hughes (2001, p.31) suggest community strengthening is:

...the extent to which all resources and processes within a community maintain and enhance both individual and collective wellbeing in ways consistent with the principles of equity, comprehensiveness, participation, self-reliance and social responsibility.

Where:

- equity refers to equality of opportunity
- comprehensiveness refers to an equal balance of the aspects of well-being for the individual and community
- participation in the sense that people have a say in decisions which impact on them
- self-reliance and social responsibility recognises the interdependence with other communities.

Vinson (2004) evokes notions of active citizenship in his definition, identifying that community strengthening occurs where a sense of neighbourhood develops between individuals, families and organisations. It happens when people become actively engaged in the community. They feel socially connected, may become volunteers or leaders, and a sense of community pride is established.

The Department for Victorian Communities (DVC) has undertaken significant exploration of the concept and measures of community strength (DVC 2005, Pope 2006). The DVC defines community strengthening as follows:

Community strength is the result of the combined efforts of governments, business and the community and is underpinned by both connectedness at the local area level and collaboration between institutions for the local community (DVC 2005, p.4).

DVC defines strong communities as:

...those endowed with social, economic and environmental assets and organisational structures that work towards their sustainable use and equitable distribution. Strong communities are built by community members who are engaged, participate, feel capable of working through problems and are supported by strong networks (DVC 2005, p.5).

Aspects encompassed by the concept of community strengthening

It can be seen from the above definitions that community strengthening encompasses a range of issues which are variably referred to or considered important. These can be summarised as:

- the need for a range of capital resources
- ideas around integrated governance and community participation
- the concept of 'community'
- notions about individual and community well-being and self-reliance

The need for a range of capital resources

The following types of capital are said to be needed for community strengthening:

- human capital (levels of skills, knowledge and health status)
- social capital (networks, norms and trust)
- institutional capital (leadership, capacity to plan and implement projects)
- economic capital (local services, infrastructure and resources)
- natural capital (environmental)
- cultural capital (Funnell, Rogers & Scougall 2004, p.1)

However, there is little clarity in the literature about what level of resourcing and what combinations of the above are needed to facilitate the creation of a strong community. An example of a possible combination includes the need for a neighbourhood centre where people can meet, a means for people to get to the place to meet and sufficient income in the household to allow a member to attend the meeting.

Ideas around integrated governance and community participation

A second strong theme relates to the role of community strengthening in enhancing local democracy, including citizen participation and local governance, and social planning and management (Ryan & Burke 2005). Indeed, governance arrangements are said to be the key to strengthening communities and underpinning successful and sustainable community strengthening interventions (DVC 2004). Positive development outcomes are obtained:

where people are willing and able to draw on nurturing social ties (i) within their local communities; (ii) between local communities and groups with external and more extensive social connections to civil society; (iii) between civil society and macro-level institutions; and (iv) within corporate sector institutions (Woolcock 1998, p.186).

These issues are reflected in a survey undertaken by DVC, which asked people about characteristics of communities that Victorians think are important. Seventy-eight percent of people felt that it is important that the government is responsive to local needs, while only 23 per cent of people felt that this was actually occurring. Again, 72 per cent of people felt that it is important that people have opportunities to participate in the decisions made by government, while only 26 per cent of people felt that this was the case in their own community (DVC 2005). These findings suggest that work needs to be done about governance arrangements in some communities in Victoria.

The concept of ‘community’

Apart from recognition that there are communities of place and communities of interest, much of the literature on community strengthening just assumes that communities exist (Stanley & Currie 2006). Community is viewed as being present when certain conditions are present: where people have feelings of identification with the group and of fitting in with others (Abbott & Sapsford 2005). When this doesn't occur, people feel normative dissonance or 'at odds' with the other community members, which reduces their well-being, a shared identification with others, and reduces the possibility of collective action for change (Abbott & Sapsford 2005).

Community size

As with social capital, ideas around community strengthening is measured in locational areas of widely varying size. However, there will always be layers of communities and intersecting communities, as well as communities of interest or culture. The DVC has an on-going project of measuring social capital based on local government divisions.

This has the outcome of ‘averaging’ the measure with the resultant risk that wide variations within an area are averaged out or hidden. It thus becomes very hard to understand specific variables that influence outcomes. For example, work undertaken by the DVC found that stronger communities tend to be in rural areas. However, strong rural placed-based communities may be very excluding for certain groups or communities of people.

Applied indicators of community strength

The Victorian Government Indicators of Community Strength are based on the notion that people will derive benefit from participation in three types of social networks (Pope 2006, p.5):

- Close personal networks (family, close friends) to provide support, practical help, contacts and resources.
- Associational and community networks (such as clubs, schools, workplaces and interest groups) to provide a wider pool to draw the benefits of close networks from, provide positive community attitudes and norms and assist in the spreading of information and innovation.
- Governance networks (connection with institutions) to improve democratic organisation of assets and services.

These reflect the types of networks as described by Stone, above. They have found an inverse association between high social isolation and low perceptions of feeling valued by society.

While there is locational variation, importantly the groups identified as most likely to be experiencing network barriers were people on low incomes, unemployed, those living in public housing or those who are non-English speaking at home. It was also found that people experiencing socio-economic disadvantage are more likely to be reliant on personal networks and to have limited associational or governance networks. Pope further suggests they are locked out of participation in institutions that support the development of these types of networks. This has a negative impact on the ability of the community to gain access to services, facilities and decision making.

In South Australian measures developed for Local Government areas, reflecting the findings in relation to social capital, a relationship was found between the indicators of community strength and socio-economic advantage/disadvantage with areas of high socio-economic strength tending to score high across the range of community strength indicators (Starr et al. 2007, p.6).

Essential ingredients for strengthening communities

In an examination of the key elements needed to strengthen communities, West and colleagues (2006) produced the following list:

- Strong local community ownership of community strengthening projects
- Strong local leadership
- Participation by ‘hard to reach’ and diverse members of the community
- Clearly defined and agreed upon goals
- Tangible outcomes for communities
- Well-functioning partnerships
- Adequate resources in the form of grants, infrastructure, information and skill development opportunities
- Skilled project workers
- Movement to a scaled up approach which is mainstreamed

Conclusions

The development of social capital and the ability to draw on community strengths is important in the ability to adapt to climate change. Social capital brings with it a capability to gain access to resources and to enhance well-being (Bebbington 1999). Networks of reciprocity, for example, are important for coping with the impacts of extremes in weather and other catastrophic environmental events (Adger 2003). It is important that the development of social capital and strong communities to respond to climate change is mainstreamed in approach and developed across the state (Cemlyn et al. 2005). An example of a facilitating factor is given by West and colleagues (2006) who suggests that government owned resources, such as schools, could be made available to local groups for community purposes.

However, social capital and strong communities need to be supported through a synergy between the state and civil society or the community (Evans & Kelley 2002). Some public goods can only easily be provided by the state. In relation to climate change, these goods include major infrastructural investment in flood defence, the management of water resources, and spatial planning that become necessary when the impacts of climate change are significant and risky for large populations (Adger 2003). In addition to infrastructure, synergistic government policy and processes need to be established to enable a two-way communication and governance structure between the community and government. This will provide for inclusive decision-making which promotes engagement with sustainability and legitimacy of any adaptation strategy (Adger 2003). Building adaptation from the bottom up also defines the problems as local as well as global and builds understanding and responsiveness. Different forms of networks will adopt different adaptation strategies but this diversity in itself promotes resilience (Adger 2000).

Social capital, in enhancing security and reducing risk directly or through interactions with the state, market, and other parts of the civil society, is likely to be a key element in any strategy for adapting to climatic hazards (Adger 2003, p.391).

A last important point here is that social capital is, as noted, much higher where people have high resource levels in the various forms of capitals. This is the tacit notion behind the development of such groups as service organisations such as Rotary and Lions. Thus, the development of bridging social capital, where links are made between communities with resources and those with less, will be one of considerable importance to the success of climate change adaptation.

6. Adaptation challenge for vulnerable groups

The previous chapters have outlined the challenges and issues: the need for adaptation to climate change and why some people are particularly vulnerable, the nature and extent of vulnerability in the five project LGAs and the measures and options to facilitate adaptation, with a theoretical overview on the grassroots building capacity option. As noted, adaptation to climate change will be influenced by a number of broad factors:

- the specific climate change issue
- federal and state government policy
- living location in some circumstances
- planning and preparation by all stakeholders
- personal socio-economic factors

This chapter brings these issues together and overviews a process to promote adaptation, particularly for vulnerable groups.

Background

Broad planning for adaptation is evolving, although on a very small scale, with few schemes having an operational design. In Australia, ICLEI (Local Governments for Sustainability) has published a handbook to assist in the building of capacity and the management of decisions in relation to adaptation (ICLEI 2009). Sietchiping (2006) has developed a method of participatory decision making about adaptation priorities in a large wheat farming area in north-west Victoria. Under this design, 25 key stakeholders from the government, farming and industry used their expert judgement to nominate adaptation issues. An Adaptive Capacity Index was developed in the domains of socio-cultural factors, infrastructure and institutional factors, and economics. The issues under these headings were weighted for relative importance and combined to enable a mapping of adaptive capacity. The outcome is participatory but based on personal judgement where considerable responsibility and assumption of knowledge was placed on a small number of people. No structure was offered to initiate adaptation solutions.

Model

A structure to facilitate the process of decision-making and adaptation, is represented in Figure 6.1. There are three major sectors involved in the adaptation process: government, non-government organisations and the community. The boundaries between these sectors are far from sharp. Local government work often blends with the non-government sector and community sector, a factor which is one of the strengths of local government. The non-government sector also has close ties with the community, again a feature which increases its relevance and success. The functions and role of each of these three sectors, is outlined in Figure 6.1, with more details given below.

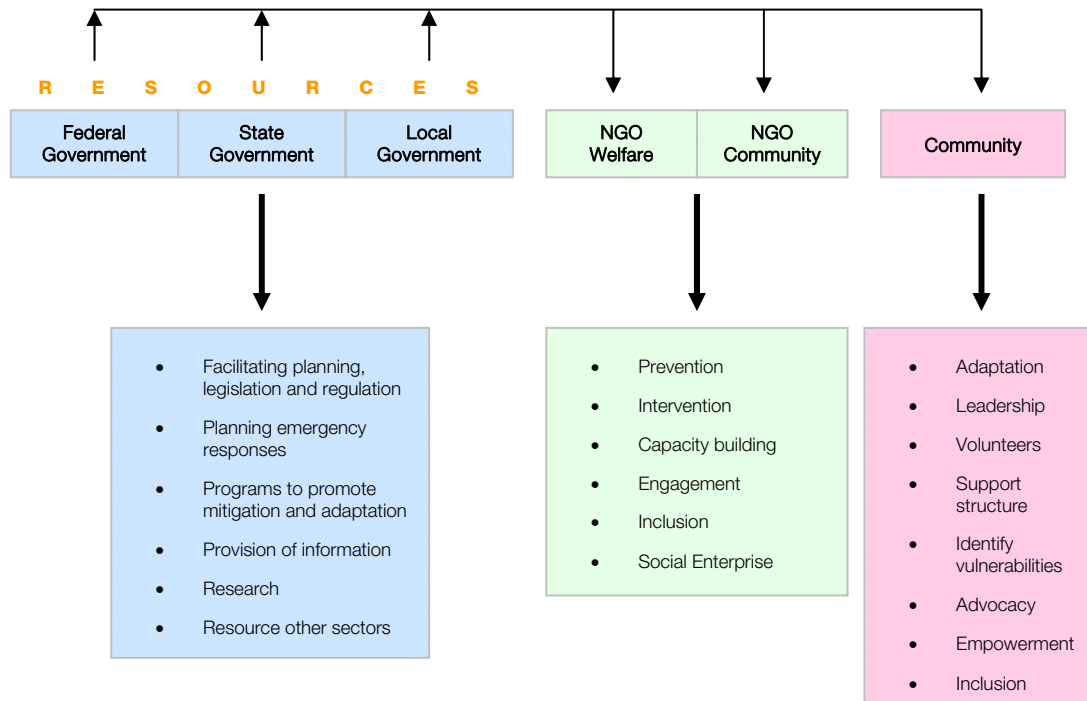
The government sector

Facilitating planning, legislation and regulation

This task has been discussed in chapter four. It is both an enabling and a regulatory role. Examples include changes in planning law to facilitate the option of government purchase of land subject to sea surges and regulation to mandate energy saving standards in new buildings and the provision of both grey and freshwater piping systems.

The state also needs an ‘enabling’ role where it helps ‘energize a diversity of groups to reach solutions to collective problems, many such groups operating in a bottom-up fashion’ (Giddens 2009, p.69).

Figure 6.1: Model of process to facilitate adaptation for vulnerable people



Planning emergency responses

Again, as discussed in chapter four, planning for emergency responses need to be further developed and expanded by government, similar to Federal Emergency Management Australia. However, considerable input is needed from the non-government groups such as the Country Fire Authority and the State Emergency Service, whose involvement will be central to emergency responses.

Programs to promote mitigation and adaptation

The important role of the provision of programs to promote mitigation and adaptation is also discussed in chapter four. Such programs are of prime importance to encourage and enable behaviour change in households. They also have a critical role in facilitating equity in the community.

Provision of information

A central role of the government is to provide accurate and comprehensive information on climate change, on how people can best reduce their greenhouse gas emissions and adapt to changing conditions and where they can receive details on programs, grants and other resources and contacts.

Research and demonstration

Research is needed to improve mitigation and adaptation, to develop technological capacities, provide more cost effective solutions and understand the effectiveness of responses. Much of this research needs to be funded by the government as well as providing incentives to the business community to fund research and technological development.

Initiatives such as the federal government's proposed renewable energy target of 20 per cent by 2020 assists but needs to be supported by a comprehensive approach which facilitates research on renewable energy and promotes change at the needed level.

Resource other sectors

A major role for government is to fund the non-government and community sectors to promote and mobilise communities to adapt. This approach is highly cost effective as it builds on personal change and voluntary labour. As discussed in the previous chapter, resources to build social capital and strengthen communities give returns not only in terms of a specific adaptation initiative but provides a 'knock-on' effect which develops human capabilities to tackle the next challenge. Networks, leadership and engagement is promoted, as well as the experience of empowerment and sense of ability to produce change and affect outcomes.

Non-government sector

The non-government sector can be thought of as two parts, each with a differing role. One part is the welfare sector represented by organisations such as Anglicare, Good Sheppard and Mission Australia. The second is the community development sector, represented by state and federal programs within the community such as Neighbourhood Renewal, Community Renewal and Communities for Children and Neighbourhood Houses. This also includes the many voluntary and service organisations such as Rotary and local interest groups. It is recognised that this distinction is not always clear as there is welfare agency facilitation of neighbourhood centres as well as varying government management processes and involvement in community development centres. For example, Neighbourhood Renewal is funded by the Department of Housing in the state Department of Human Services. Community development work is undertaken by some local governments, such as the Shire of Mornington Peninsula.

It is recommended that the welfare agencies and the community development centres be resourced to enact two slightly different but complimentary roles.

Community Development Centres

The task of the community development centres is to provide information, resources and a central organising point for the community. It provides a venue and administrative base as well as the co-ordinating links for the local community to self-help. Through this process it promotes knowledge about climate change and the need to adapt, it brings together people who have the expertise with those who have the resources, time and desire to work towards change and assist those who have additional barriers to adapting. These centres are a point of coalescence for those who might otherwise be excluded. In this capacity, the central function is to provide prevention services to ensure that vulnerable people have adapted to minimise adverse outcomes from climate change itself and from government policy to influence behaviour around climate change, such as a carbon price.

Examples of activities include organising group purchasing of low energy products; linking people with microfinance and non-interest loan schemes; development of community gardens; food co-operatives for localised wholesale food buying and purchase of excess home grown food; local kitchens to increase knowledge on low cost/low carbon intensive food; a car pooling and car sharing scheme...

As Demos (2003) argues, community organisations have many advantages in the provision of essential ingredients for capacity building and inclusion, including:

- Longevity – staying power for organisations to gain and keep the trust of the communities they serve
- Leadership – internal and by drawing on the formal and informal leaders in the community they serve
- Leverage – developed through development of trust building relationships within and beyond the community sector

Welfare sector

The task of the welfare sector is to provide intervention support to those who have not been able to adapt and are in need of specific assistance. People with this need could be a new migrant, a person with mental illness or a homeless youth. The welfare sector could also provide specific services to individuals missed by the community development system. The welfare sector would assist specific individuals and families with complex needs who may be experiencing multiple disadvantages. The welfare sector would provide advice and expertise where needed, as well as be an important source of information for the community development centres.

In some situations, the welfare sector would also be a local outlet for government programs aimed at assisting adaptation, such as grant schemes for hot water services and insulation in housing. An important role being build by the welfare sector is in the area of Social Enterprise. The model is one where a service is provided by the welfare sector which has both capacity-building and inclusion aims, such as assisting long-term unemployed people to find and retain a job, as well as the provision of financial returns to cover service provider costs and perhaps assist in the development of other enterprises and programs. The Energy and Water Taskforce is one such example. The program has been shown to have reduced energy usage in 25 towns and suburbs which were given free assessments and retrofits. The program is administered by local welfare agencies and commonly employs unemployed people to do the work, offering training, work support and experience to improve work readiness.

The Victorian Government, through the Department of Planning and Community Development, has established an Office for the Community Sector with an aim to work closely with the community sector (DPCD 2009). It intends to:

- Reduce red tape for not-for-profit organisations
- Build the capacity of community organisations
- Support innovation and growth
- Enhance not-for-profit community organisations in local community life
- Engage with the non-for-profit community sector and co-ordinate efforts across government

This new government office provides a process to facilitate the movement of resources and information to the community sector.

Community

The final sector is the community itself. The task is to undertake the adaptation and to facilitate other community members to adapt. This process is done through identifying need, developing leadership and a volunteer system and accompanying support structures, promoting inclusion and empowerment and undertaking advocacy.

Business/industry and climate change experts and researchers

While not having a strong presence on the planning and operational side of adaptation, business/industry and climate change experts and researchers have an important role in the provision of knowledge, resources and workforce and regional socio-economic planning.

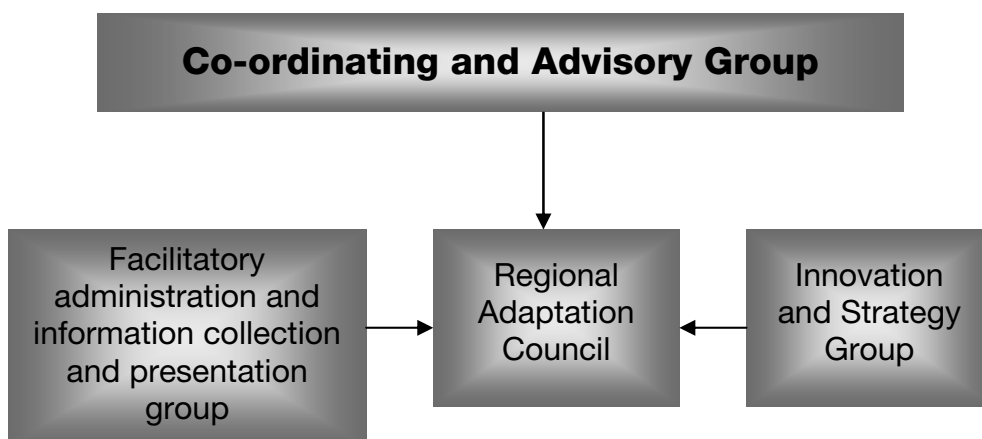
Regional Adaptation Planning Council

It is suggested that representatives from each of the sectors (government, non-government and community sectors) shown in Figure 6.1 form a Regional Adaptation Council to encompass the Western Port LGAs (see Figure 6.2). This Council would set priorities, co-ordinate approaches, secure resources and oversee progress on adaptation. A number of Adaptation Councils could be established across regional areas in Victoria. These Councils would have the task of facilitating all social adaptation but ensuring priority is given to those experiencing the greatest vulnerabilities to disadvantage arising from climate change.

These Adaptation Councils across Victoria could be overseen by a Co-ordinating and Advisory Group (Figure 6.2). This Co-ordinating and Advisory Group would comprise representation from state government departments, business and the research sector. The Group would collect key learning's from the Adaptation Councils and feed these back to the state and federal government departments to allow adoption of this knowledge in policy and government programs.

Two other groups would facilitate a state-wide approach. A facilitatory administration and information collection and presentation group would act as a Secretariat for the Regional Adaptation Councils. This group would manage a website, gather and present information for the Regional Councils, organise workshops and generally facilitate their operations on a group basis. An Innovation and Strategy Group of climate change experts, researchers, NGO, business and government representatives would bring forward new knowledge, technologies and developments which will impact on, and facilitate the adaptation process.

Figure 6.2: Organising structure for overseeing adaptation



Overseas experience

Knowledge can be gained from the looking at processes being undertaken internationally. The Department of Environment, Food and Rural Affairs (DEFRA) is important in the adaptation process in the UK. They have worked on broad social adaptation for a number of years.

For example, they have developed a model of adaptation comprising four ‘Es’: enabling, encouraging, exemplifying and engaging; work on theoretical models of behaviour change; and developed a list of priority behaviours for households (Table 6.1) (DEFRA 2006).

Table 6.1: short list of priority behaviours recommended by Green Alliance, following their series of workshops

Have a household environmental audit
Tackle energy efficiency in the home: <ul style="list-style-type: none"> • Install microgeneration • Insulate • Buy energy efficiency appliances • Install smart energy meter
Tackle water efficiency in the home: install a water meter
Seek alternative transport for short trips (of less than 3 miles)
Avoid short-haul domestic and intra-EU flights
Use low carbon vehicles
Buy local and seasonal food (certified where possible)
Waste less food
Rely less on animal protein

Source: DEFRA 2009, p.23

Present positions of the sectors

Local government

Consultations were held with officers and councillors in three LGAs: the Shires of Mornington Peninsula and Cardinia, and the City of Casey. The author met with between two and five council officers in each of the three LGAs. It should be noted that these consultations were informal and not comprehensive. Rather, they were undertaken to assist the author’s understanding of the present situation and trends rather than designed to be a complete audit of projects.

The WPGA appears to have been successful in adding to awareness about some of the adaptation challenges, especially in relation to the direct physical impacts arising from climate change. While planning has commenced in relation to climate change, actions are very small scale. The following gives an initial scoping of the present situation.

Awareness of need for adaptation

Those consulted had the impression that many, but not all council staff, were aware of some of the tasks ahead for successful adaptation to climate change. The view was expressed that there is still work to be done to raise awareness about the need for this work with some council staff and councillors. Work commenced in relation to climate change is still largely in the early planning stage, with some expressing a belief that actions tend to be reactive rather than proactive. This work is continuing, such as on the penguin tourist attraction at Philip Island and climate change. Other initiatives are mentioned in the following sections.

Various approaches

Each LGA has determined its own priorities in relation to adaptation, commonly adding this task into the duties of specific staff roles. For example, Cardinia Shire has placed responsibilities with the Strategic, Environmental and Social Planner, the Emergency Management Co-ordinator and the Sustainability Manager. This variability in response was not necessarily viewed as a good thing, the point being made in one consultation that there are 79 LGAs in Victoria and they all do business differently and all going in different directions with adaptation.

LGAs appear to also vary in their priorities for responses. Casey has established a ten person Climate Change Taskforce with plans to engage with the community. They also have a coastal building initiative with plans to produce a response similar to that of the Shire of Wellington. They place importance on the need to have a solution to give to people when information is given to the public about physical climate change impacts. There are plans to produce a brochure with information, followed by web site improvement.

Mornington Peninsula Shire is undertaking a two pronged approach based on community development. Strong links are made between climate change and social justice, as well as an understanding of the need for structural changes. Work is being undertaken with an Aboriginal Support and Development Group looking at cultural heritage and climate change. The Shire believes it has a responsibility to provide a leadership role. To this end, they held a public event for World Environment Day linking the environment and social justice, through the provision of speakers and information stalls and facilitating the involvement of the local secondary college.

Energy and water saving

The LGAs are commencing or planning to commence work on energy efficiency in council property, facilitated by ICLEI (Local Governments for Sustainability) and the WPGA. ICLEI, under the scheme Cities for Climate Protection, has set targets for local governments around the reduction of emissions. A target of 20 per cent reduction by 2010 for corporate Casey has been set, with carbon neutrality aimed for by 2017. The major savings in the City of Casey was to be around street lighting, using T5 lights, but the program has been deferred for four years. The new aquatic centre takes water from the roof of the old Ford factory. Solar heating is not installed because of anticipated improvements to solar technology. An administrative complication around billing, the electricity company wanting to charge a connection fee, is preventing power from a small existing solar system being fed back into the electricity grid. Indeed, the tracking of charges has proved to be a major barrier for renewable energy and water saving as well as a significant cost to the council. Cardinia Shire is hoping to offset their carbon by 40 per cent.

The City of Casey and the WPGA are planning to commence household energy assessments, the final model of audits and energy efficiency assistance, yet to be decided. Chisholm Institute of TAFE is a partner offering training in household assessment. The plan is to pilot a program for three months and then roll it out. New work from Deakin University on Air Barrier Technologies is being explored to be incorporated in retrofits. There has been a low take-up of showerheads (about 20 per cent) by disadvantaged households. It was felt that the Dandenong City model, where people are trained to change showerheads, may be needed in Casey, using the community house as a demonstration building. Casey City had hoped to get funding to explore the costs and benefits of sustainable buildings and develop a business case for sustainable housing by looking at energy bills over a ten year period, however the funding application was not successful.

Cardinia Shire, with WPGA and funding from the Victorian government, Ecosmart, is putting in funds to trial the development of an eco-community centre for low socio-economic groups in Cockatoo. This would be used as a retrofitting training centre and a place for local traders to sell their own products.

Mornington Peninsula Shire is planning to facilitate group purchasing of low energy/energy efficient appliances for households, solar panels and water tanks. South East Water is upgrading the Boneo treatment plant to deliver 2200 mega litres of Class A recycled water to rural customers and golf courses. Water will also be supplied to Council ovals and Rosebud Secondary Colleague for summer 2009/10.

Social exclusion

The LGAs are concerned about the extent of social exclusion and have dedicated services to address this. They are aware that there are unaddressed problems and pockets of severe disadvantage in the LGAs such that many people are currently seeking material aid. The Shire of Mornington Peninsula spoke of Indigenous disadvantage and poor housing. Homelessness is high and overwhelms emergency housing capacities, particularly in Hastings and Rosebud West. There is an impending problem in Hastings where a caravan park is likely to close with 190 people housed in the park. Rosebud West has low cost housing and rents which attract people with low incomes and pensioners, these pockets of disadvantage extending to Rye. Tanti Park in Mornington has few services, resulting in a much disenfranchised community of 900 to 1,000 homes, with single parent families reaching 40 per cent of residents. The area is an old housing estate where public housing has been sold to landlords who can't afford to pay the loans. Areas in Cribb Point, Baxter, Hastings and Sommerville have households with high mortgages and low employment opportunities. Some members of the 650 strong Indigenous community are experiencing hardships with insufficient food and difficulties paying utility bills. These people are based in Hastings, Mornington, Rosebud and Cribb Point.

Cardinia and Mornington Peninsula Shires are planning to look at issues of food security. Mornington Peninsula is facilitating the development of community gardens, undertaking food basket cost surveys and encouraging more organic methods of food production. Cardinia Shire is struggling with a large volume of new families moving into the area to obtain low cost housing. The Shire is very aware of their vulnerability and the Shire's added responsibilities should conditions alter, such as a rise in unemployment, shifts in interest rates or the costs of utilities rise. It was noted that these shifts in the costs of housing risk are often accompanied by an increase in alcohol consumption, problem gambling and domestic violence.

There is recognition that to date little connection has been made between social exclusion and climate change. A shire consultation on this issue is being undertaken in Mornington Peninsula through the Liveable and Just program. Cardinia Shire stated that social exclusion and climate change is next on their agenda. A major barrier is a lack of resources to do this work and the need for a strategic perspective. There is a belief that the cost of adaptation needs to be met by state and federal government. Urban growth in the Shire is a major consumer of time and resources and therefore leaves little space to be proactive about other issues. Cardinia Shire is receiving four new families a day and resources are stretched to the limit. There is a desire to be able to build the capacity of the many local groups in order to address adaptation issues.

Community development

Self-help groups have been forming in the last couple of months in Cardinia Shire. However, these tend to be in the wealthier areas and around specific environmental issues such as pollution in a local creek.

This action hasn't occurred in areas where people are more vulnerable to climate change, the view being expressed that they have enough issues to deal with already. Mornington Peninsula Shire held a series of consultations with residents about climate change. Following the shire meetings, Mornington Peninsula Shire has produced a newsletter with information about climate change and related community events, practical tips, reporting what others in the area are doing.

Mornington Peninsula works with Neighbourhood Renewal and Community Renewal to improve recycling as well as other ways of getting the community involved in adaptation. Work is also being done in relation to local wetlands, open spaces and the natural environment. The short-term approach to Community Renewal programs impedes progress. Mornington Peninsula Shire has also facilitated practical sustainability workshops for interested householders. Interestingly, a barrier was felt to be resident's feelings of disempowerment and anger in relation to climate change.

Emergency services

The operational side of emergency responses appeared to be well developed. Work is being done on emergency planning and climate change, for example, how to best assist people with high temperature days. Casey City has a database of those who may need assistance in an emergency, which is managed by the Community Development Officer. The LGAs have a particular problem of handling non-residents or holiday makers in an emergency.

Visitors to LGAs

LGAs raised the problem of adaptation and non-permanent residents where they are not integrated into the community, and may not be aware of adaptation needs, local resources and procedures should an emergency arise. Sustainability Victoria's Energy and Water Taskforce were not able to offer a service to non-permanent residents in their West Rosebud program. This issue is present in Mornington Peninsula, Cardinia and Bass Coast Shires, with 60 per cent of houses on Philip Island are not continuously occupied.

Local workforce and employment planning

Some workforce planning is being undertaken in the LGAs, although climate change and adaptation is not the driving force behind this. Cardinia is trying to attract industry into the shire with the Cardinia Road employment precinct. They note some success in attracting white collar and government employment but manufacturing is not very diversified. Mornington Peninsula Shire is working with Chisholm TAFE to provide local trade training. Bluescope Steele at Hastings used to take on about 400 apprenticeships, but doesn't take any now, compounding the lack of employment and training opportunities for youth in the Hastings area. Public transport from Hastings to other possible opportunities at Frankston is limited.

Public transport

Public transport was identified as a problem in the LGAs. Cardinia Shire notes that bus services have been increasing and may improve further in the southern part of the Shire and through the growth areas, after the recent Victorian Government bus reviews. However, services in the Northern area were said to be 'woeful'. A new railway line is planned through the growth area and Cardinia Road Station is being built. Mornington Peninsula Shire has commissioned research on transport needs in the Shire and is looking to maximise transport opportunities for residents.

Conclusions

While there is a growing awareness of the adaptation task for those at risk of social exclusion, the impression is that there is not a lot in place as yet other than some emergency management procedures. The need to add this task on existing staff roles and the difficulty obtaining resources to undertake this work are significant barriers.

The trends are:

- Some specific issues are being examined, but not other issues. However even those where adaptation tasks have started are at a very early stage, not co-ordinated or really part of a strategic plan.
- A fairly narrow perspective on the impacts of climate change on households in general, and specifically disadvantaged households. One LGA officer expressed the view that people are largely still in denial about climate change.
- The need to address existing disadvantage and particularly the significant population growth in some LGAs is diverting time and resources from the issue of climate change as these needs are seen to be immediately urgent.

Non-government organisations (NGOs)

The distribution of welfare agencies varies between the LGAs. Frankston City has the greatest number, being a more urban and established centre with a higher concentrated population. As well as direct service provision, NGOs also provide organisational structure and services for federal and state government place-based programs such as Communities for Children, Best Start and Community Renewal. Mornington Peninsula would appear to have the second highest number of agencies of the Western Port LGAs:

- Anglicare in Rosebud West, an agency which provides services to families
- Good Shepherd Youth and Family Service in Hastings, which provides services to families including family and financial counselling and domestic violence services
- Oz Child in Mornington
- Peninsula Youth and Family Services in Rosebud and Hastings
- The Salvation Army in Rosebud, Mornington and Hastings
- The Neighbourhood Renewal program in Hastings (and Frankston) auspiced by the Brotherhood of St. Laurence.

Most of these services are small and offer a localised service particularly around family and child welfare.

Due to the recent growth in the urban boundary, Cardinia Shire and Casey have less welfare organisations present than other Melbourne metropolitan areas. There are a few specific services. Cardinia Shire has a church centred group, The 4Cs, which operate food-banks and the Western Port Youth and Emergency Housing (WAYFF) which also gives assistance in relation to crisis accommodation. The view expressed in the Shire of Cardinia was that welfare groups are struggling to keep their heads above water let alone deal with issues arising due to climate change.

Consultation with a large welfare agency in the region has shown that no work is presently being undertaken on adaptation issues. Agencies are using all resources on addressing current disadvantage, the task being made harder at present with the economic recession. The agency consulted provides services in relation to financial counselling, family support, domestic violence services with three refuges and 11 outreach sites, adult pre-vocational employment training and a half-time Indigenous worker. They are also developing a new Neighbourhood centre which will also provide specialist child health and development services. South East Water provides two financial counsellors to assist local residents who are having difficulties paying water bills. There is a six month wait for assessment for microfinance services, a possible means to assist low income families to purchase more energy efficient appliances.

Conclusions

While consultation was limited, it would seem that no welfare organisation in the Western Port LGAs is undertaking work specifically on adaptation to climate change for vulnerable families. Knowledge and resources is not yet available to this sector to enable this issue to be addressed.

The Community

Community development is very active in Victoria. Two major state government departments, the Department of Human Services and the Department of Planning and Community Development foster and fund this approach. Local government has staff who work on promoting this grassroots approach to empowering people. The Neighbourhood House system is active and widespread, discussed further below. Other Advocacy and Community groups are widespread in the LGAs, including the more traditional service groups such as Lions and Rotary.

The author consulted with a community development worker at a Community Renewal site. The site was beginning to respond to adaptation needs of the local community with a program addressing mainly fire safety but a small component on greenhouse gas reduction. Thirty volunteer community leaders have been trained to give talks on these issues to the community, commonly based at Neighbourhood Houses. The Community Renewal program is managed by a 15 member resident steering committee which decides community issues which will be adopted, such as improvements to the local shopping centre and assistance to the local school. It was said that the community development work provided the capacity to be innovative and responsive to identified issues, as well as developing an underlying agenda of increasing pride in the local community.

Resourcing the NGO and community sector to address adaptation

As noted earlier, it is recommended that the NGO and community sectors be funded to facilitate adaptation for those at risk of social exclusion. More work is required on this idea, including:

- Understanding in greater detail the location and catchment, in terms of geographical area and issues addressed, for the present welfare offices in the LGAs
- Ascertaining interest in undertaking this role
- Reviewing capacity and undertake knowledge development in this area
- Resourcing this work

It is likely to be necessary to set up some more branches of welfare organisations to cover gaps.

There is considerable variability in location, coverage, resources, governance arrangements and knowledge in centres working on community development. It is recommended that Neighbourhood Houses be used as the major centres for community adaptation. The Neighbourhood Houses system has a governance structure in place, the Association of Neighbourhood Houses and Learning Centres (ANHLC). Established in the early 1970s, it has a membership of over 350, most of centres in the state. The Neighbourhood Housing movement is well embedded in the community with a strong tradition of volunteerism. In contrast to the state government funded community development, it does not tend to have an end date. The peak body, ANKLC could provide a structure to assist planning and development, as well as distribution of funding and administration.

The following Neighbourhood Houses are located in the Western Port LGAs:

Mornington Peninsula Shire

Community House, Crib Point
Dromana Community House, Dromana
Good Shepherd Neighbourhood House, Hastings
Hastings Community House, Hastings
Mornington Community Contact Inc., Mornington
Mt Eliza Village Neighbourhood Centre, Mt. Eliza
Mount Martha Community One Inc., Mount Martha
Rosebud Community House, Rosebud
Rye Beach Community House, Rye
Somerville Community House, Somerville
Sorrento Community Centre Inc., Sorrento

Frankston City

Belvedere Community Centre, Belvedere
Berwick Neighbourhood Centre, Berwick
Lyre Bird Community Centre, Carrum Downs
Orwil Street Community House, Frankston
Mahogany Neighbourhood Centre, Frankston North
Karingal Neighbourhood House Inc., Karingal
Langwarrin Community Centre, Langwarrin

Casey City

Blind Bight Community Centre, Blind Bight
Cranbourne Community House, Cranbourne
Merinda Park Community Centre, Cranbourne
Cranbourne East Neighbourhood House, Cranbourne East
Doveton Neighbourhood Learning Centre, Doveton
Endeavour Hills Uniting Care Neighbourhood Centre, Endeavour Hills
Hallam Community Centre Inc., Hallam
Hampton Park Community House, Hampton Park
Narre Community Learning Centre, Narre Warren
Oakgrove Community Centre, Narre Warren South

Cardinia Shire

Bunyip & District Community Centre, Bunyip
Cockatoo Community House, Cockatoo
Lang Lang Community Centre, Lang Lang
Living & Learning Inc., Pakenham
Outlook Community Centre, Pakenham
Upper Beaconsfield Community Centre, Upper Beaconsfield

Bass Coast Shire

Bass Valley Community Centre, Bass Coast
Corinella & District Community Centre Inc., Corinella
Phillip Island Community & Learning Centre, Cowes
Inverloch/Venus Bay Community House, Inverloch
Bass Coast Adult Education Centre, Wonthaggi

Application of this model in the project LGAs

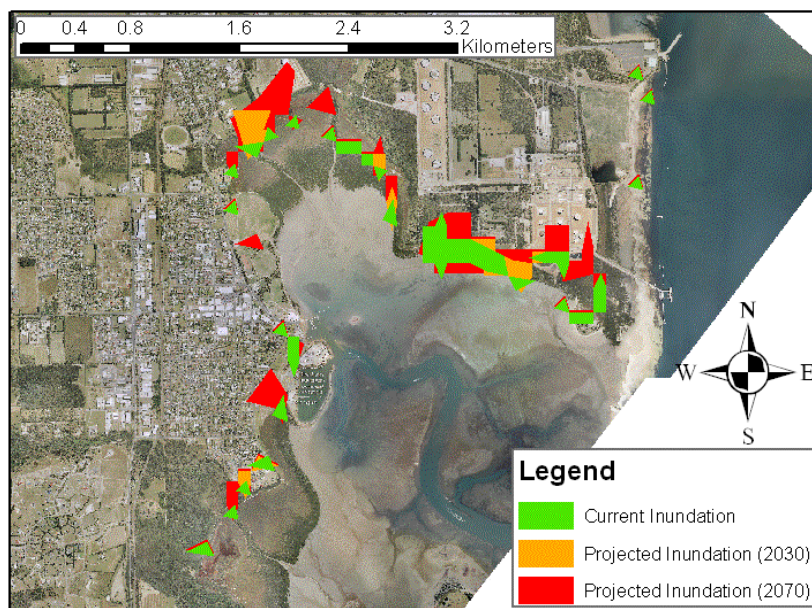
Living Locations

An examination of the living locations of the mapped vulnerable groups (see chapter three) in the five LGAs shows that some living locations have more than one form of disadvantage present. This is particularly so along the coast of Port Philip Bay from Sorrento, through Rosebud to Dromana. Mt. Martha has a large population of older people. Mornington, Frankston and Seaford areas have multiple vulnerabilities present. The East Coast border of the Mornington Peninsula again is an area reflecting multiple vulnerabilities, particularly around Hastings and Bittern. Clusters of disadvantage can be found around the newer urban centres of Hallum, Hampton Park and Pakenham, which tend to be sole parent based. A significant cluster of disadvantage is on the northern coast of Western Port Bay in the Shire of Bass Coast, around the towns of Kooweerup and Lang Lang and further south to Granville and Corinella. These areas have high numbers of older persons, unemployed males and lone parent families on a low income.

Those with no post school qualifications are wide spread in the LGAs, including being present in areas without other vulnerabilities but they tend to be farming areas with low population. Similarly widespread, but with no clear trends and somewhat unexpectedly, are areas with high proportions of people receiving unpaid disability assistance.

Many of these areas with clusters of disadvantage also have specific physical vulnerabilities as identified in the previous reports on the Western Port area. This is particularly around coastal areas in the Mornington Peninsula Shire, Rosebud and Hastings, Frankston city and north of the city and Philip Island. Storm surges and coastal inundation which are current and anticipated in 2030 and 2050 are shown in Figure 6.3, by way of illustration. Hastings is identified as an area with high risk of social exclusion amongst its residents, it also has a high risk of coastal inundation. This would seem to be a priority area to place resources to assist people with adaptation.

Figure 6.3: Spatial distribution of 1 in a 100 year storm surge inundation around Hastings, Mornington Peninsula Shire



Source: Kinrade & Preston 2008, p.43

Vulnerability index to climate change

Resources to facilitate adaptation to climate change should be allocated on the basis of need. As illustrated above, decisions about need should be based on broad theory and knowledge about social exclusion and vulnerability as well as highly localised information. The following is a suggested guide to assess vulnerability. The extent of vulnerability increases as the numbers rise.

Level 1: Person at risk of social exclusion (e.g. aged person)

Level 2: Person at risk of social exclusion with more than one vulnerability characteristic (e.g. aged person in the private rental market)

Level 3: Person at risk of social exclusion who lives in a location with greater vulnerability to climate change (e.g. aged person living in a high fire risk area)

Level 4: Person at risk of social exclusion who either has additional vulnerable characteristics to climate change and/or who lives in a location with more than one increased vulnerability to climate change (e.g. young sole parent family in an area with poor transport services who lives in an area at risk of coastal sea inundation).

Resources and priority should be allocated according to the above rating.

The overarching picture – a Victorian Adaptation Plan

The following are recommendations for the integration of equity issues for adaptation within the project design for the development of regional adaptation strategies.

1. That the WPGA and other regional organisations continue the role to facilitate and co-ordinate an adaptive response to climate change. These groups should meet, say four times a year. Membership should include existing organisations, such as the WPRA, representatives from the local governments within the region, state and federal government, representation from a key climate change knowledge centre such as the Monash Sustainability Institute, emergency response organisations, and a community and business representative.

The purpose of this is:

- To continue the work of the WPRA in defining and locating the problem. This should include on-going work on the physical impacts, as well as greater detail on the socio-economic impacts on the region and the impacts on the natural environment and biodiversity
- To put in a strategic plan, including time-line and key players for adaptation to climate change. This should incorporate mitigation strategies wherever possible.
- To oversee and co-ordinate the roll-out of the adaptation program
- To understand and facilitate best practice on adaptation processes; to be a conduit of up-dated information; to review and provide feedback to improve operational effectiveness; to co-ordinate learning from other regional adaptation structures.

2. It is recommended that this structure is formed to address needs in other natural groupings in Victoria and Australia. Boundaries for regional groupings should not be limited by state boundaries but based on similarity of issues, such as around the Murray River.

The regional groups should meet in a workshop/informal forum type basis with other regional groupings around Australia to share knowledge and learning's and formulate broad responses and policy.

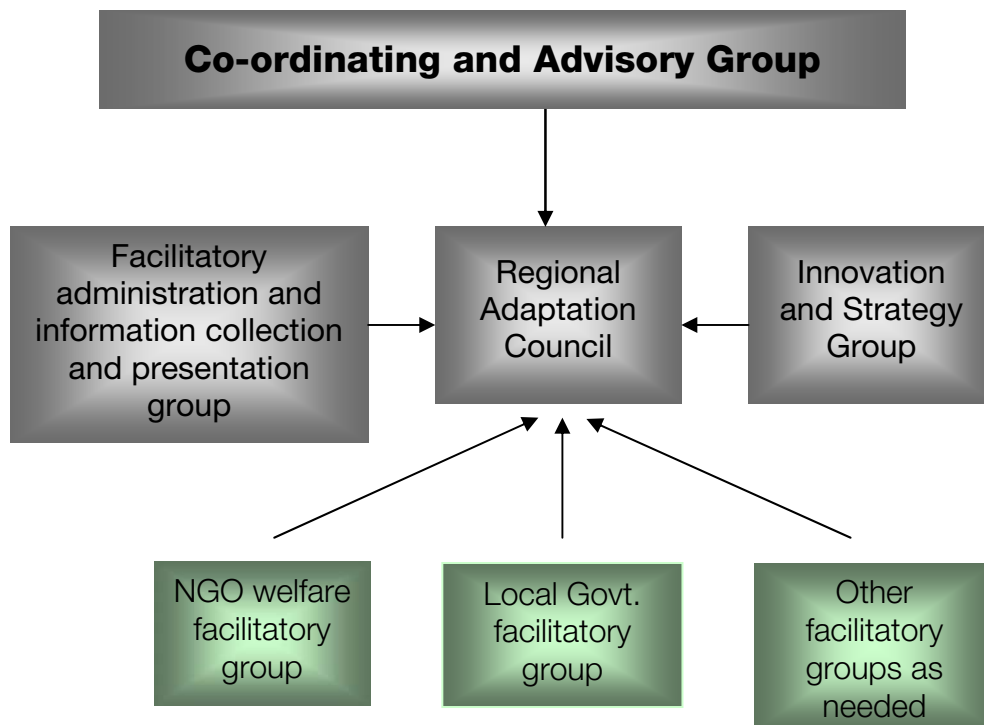
3. A sub-committee of this structure should be formed within the major welfare organisations to facilitate and co-ordinate the involvement of adaptation processes within local NGOs. Such a body should oversee planning, resourcing and co-ordination to the operation processes within the local Adaptation Councils.

4. Similarly, oversight and support should be given to the Victorian Local Governments. This could be facilitated through a co-ordinated leadership group from the Victorian Local Governance Association and the Municipal Association of Victoria, with input from the Department of Planning and Community Development. Such a group could offer information, co-ordination, direction, and targets for local government. The group could also play a strong role in review of the Planning Act in order to up-date the capacities of planning in the light of climate change. It could also make representation and suggestions in relation to other legal agencies which will be involved with adaptation, such as the Victorian Civil and Administrative Appeals Tribunal.

Figure 6.4 shows the adaptation governance structure with sector facilitating and co-ordinating groups providing additional resources. Essentially the task is to:

....as far as possible prepare beforehand in a pre-emptive fashion, basing what we do upon risk assessment, with policies evolving as scientific information shifts and matures' (Giddens 2009 p.72).

Figure 6.4: Adaptation structure showing sector facilitating groups



7. The facilitation of other opportunities in the process of adaptation

Identify examples of possible synergies between adapting to climate change in the region, and other issues (e.g. mobility and access needs, youth training opportunities).

The process of adaptation to climate change is likely to promote other opportunities. These particularly lie in:

- the creation of employment opportunities, especially where re-training schemes for workers are targeted towards those with low skills at present and who have low employability.
- The development of social capital and community engagement
- Improved urban planning and improved transport infrastructure, especially around the area of facilitating active transport (walking and bike riding) and public transport.

While the opportunities of personal and community capacity building and improvements in urban design and public transport have been referred to in this paper, a brief overview of the opportunities in the green economy for those experiencing difficulties in obtaining employment, is now given.

Social Enterprises which also facilitate employment

A CSIRO report on growing the Green economy identifies that skills shortages in the environmental sector will constrain the ecological restructuring of economies and is limiting people's ability to take up energy efficiency alternatives such as LPG for cars and solar power for homes (Hatfield-Dodds 2008).

Important green collar skills are identified as:

- Planning and design
- Business leadership and entrepreneurship
- Project management and procurement
- Specific business management expertise (such as for architectural practice, broad acre farming, fleet management, specialist manufacturing or retail)
- Trade skills (such as green plumbing, construction of energy efficient buildings, renewable energy, low input gardening)
- Assessment of project requirements (such as specification of inputs, system specification, access to finance, approvals requirements, total costs) and outcomes (such as water and energy use, efficiency, market value)
- Marketing and communication (Hatfield-Dodds 2008, p.23)

Hence, employment opportunities will grow in the green economy, with a growth of 230,000 to 340,000 new jobs in the transport, construction, agriculture, manufacturing and mining sectors (Hatfield-Dodds 2008, p.29). The common view is one of jobs growth, although some conservative federal politicians are forecasting job losses, the outcome will in part depend on the requirements, encouragement and resources put into the development of renewable energy generation and other parts of the green economy, rather than supporting the existing high polluting industries. There is work being undertaken at present, which is examining whether they will be largely job replacement or actual job growth.

However, the reality is that there will need to be retraining around new skills. The opportunity is to facilitate this training for those at greatest risk of unemployment – those with lower education attainment and those who already are finding job procurement difficult.

There is a growth in social enterprise programs which support such people to move into the new job opportunities, such as retrofitting houses for greater energy efficiency. These programs support training and Intermediate Labour Market programs in the green economy to promote both labour market equity and positive environmental outcomes (Franz et al. 2008) (Hatfield-Dodds 2008).

An evaluation of such a program run by Mission Australia (2008) found outcomes including:

- Technical skills development and qualifications
- Non-technical vocational skills and attributes, such as self confidence, ability to meet formal workplace requirements such as punctuality
- Personal and life-skills development

Finna and Simmons (2003), reported in The Brotherhood of St. Laurence's *Intermediate Labour Markets as Pathways to Employment* report success factors including:

- Voluntary participation, to ensure that the programs retain a good reputation among both participants and employers
- Replication of conventional employment market in terms of application process, wages, workplace protocols and employee rights
- Rapid commencement of employment for those selected to take part, with minimal pre-placement activities
- Close case management, which requires low participant-to-staff ratios (generally 25:1) with at least weekly contact
- At workplaces participants should have more supervision, guidance and support than regular employees in comparable jobs
- Specialised training
- Assistance to develop personal attributes valued by employers, such as motivation and self-discipline
- Periodical progress reviews and the option of more substantial support if needed
- Program duration of between 9 and 15 months, with a specified time-limit to reinforce the concept that the program is a transition into the conventional labour force
- Job search assistance
- Help with job applications
- Job placement, to ensure a transition to employment after the ILM (Mestan & Scutella 2007, pp.6-7)

The Victorian State Government is also operating similar schemes. For example, the Energy and Water Task Force, facilitated by Sustainability Victoria, has been shown to be effective in terms of energy saving, the provision of employment training and opportunities, and in terms of the promotion community development (Stanley & Johnson 2009).

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