



**Victorian Local
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LIVEABLE AND JUST: Improving the capacity of local government to respond to climate change in ways which are healthy, just and sustainable

Discussion Paper

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The Liveable and Just project is an initiative of the Victorian Local Governance Association, in partnership with the Brotherhood of St Laurence and the Department of Sustainability and Environment. It is funded through the Victorian Government's Sustainability Fund under the Victorian Local Sustainability Accord.

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1. Introduction

The Liveable and Just Project is an initiative of the Victorian Local Governance Association (VLGA), in partnership with the Brotherhood of St Laurence and the Department of Sustainability and Environment. The project is funded through the Victorian Government's Sustainability Fund under the Victorian Local Sustainability Accord. The VLGA has engaged the McCaughey Centre, VicHealth Centre for the Promotion of Mental Health and Community Wellbeing, University of Melbourne, to undertake research for the project. Further guidance is being provided by the Liveable and Just Steering Committee comprising representatives from the project partner organisations, as well as the Victorian Council of Social Service, the Monash Sustainability Institute and the Department of Planning and Community Development.

1.1 Project purpose and aims

Local government has responsibilities across a wide range of areas that impact on both climate change mitigation and adaptation, and the health and wellbeing of citizens and their communities. To date local government risk assessment and planning for climate change has tended to focus on the physical implications for landscapes, weather patterns and human settlements with limited consideration of social impacts. Social impacts of climate change can be defined broadly as those that influence the health and wellbeing of individuals and communities, covering areas such as physical and mental health, social equity, disadvantage, social inclusion and participation, access to food and water, employment, education and social services, as well as the strength of community cohesion and engagement of citizens in community life. There is currently little available information on how local government can frame and address the critical and wide-reaching social impacts of climate change in light of their roles and responsibilities. The purpose of this project is to provide a synthesis of knowledge and research to date on the social impacts of climate change relevant to local government responsibilities and to open a dialogue with the local government sector to contribute to strategic planning and appropriate action.

Through a process of engagement with the local government sector, this project aims to:

- improve the understanding of the social and equity impacts of climate change;
- investigate the implications for local government, including expected changes to the nature and demand for community services they provide;
- explore the potential roles of local government in addressing the social impacts of climate change; and
- identify tools and resources required to assist local government respond effectively to the social impacts of climate change.

1.2 Project methodology and outcomes

The Liveable and Just project will be conducted between November 2008 and December 2009. This discussion paper constitutes the first of several key components of the project. The other components are:

- a series of workshops across Victoria with local government staff and elected representatives designed to address the themes and questions raised by this discussion paper;
- recommendations for action including for individual councils working with their communities as well as policy options for communication to Victorian and/or Commonwealth Governments; and

- a *Liveable and Just* Resource Kit. The contents of this kit will be informed by the workshops but are likely to include:
 - an overview of the social impacts of climate change of greatest relevance to local government;
 - opportunities for and barriers to communities and local government working together on climate change and social equity;
 - approaches to working with marginalised groups to respond to climate change; and
 - a list of resources and grants available to local government, community and environment groups.

1.3 About this discussion paper

This discussion paper is separated into two distinct parts, providing a framework for both informing and seeking feedback from the local government sector.

Part I sets the context and provides essential background information for discussion of critical questions raised in Part II. It provides a synthesis of existing research on the social impacts of climate change, informed by a review of relevant Australian and international literature. This section builds understanding of what is meant by the social impacts of climate change and where these impacts coincide with the roles and responsibilities of local government.

Part II is designed to guide discussion and gain input from the local government sector about implications of climate change for the communities they are part of and the social services they provide. It aims to facilitate exploration of the implications at the local level as well as potential solutions and specific actions that can be taken by those working in councils, at varying levels of seniority. Part II consists of a series of discussion starters for council staff, broadly organised to consider the following questions:

- What will be the social impacts of climate change in our local area?
- What can we do to minimise these impacts?
- What resources do we need in order to do so?

PART I – The social impacts of climate change and local government: A synthesis of existing knowledge and research

2. Overview of climate change trends and implications

2.1 Climate change – global trends and implications

Climate change is widely recognised to be amongst the most complex and far-reaching challenges facing humanity. The overwhelming majority of climate scientists agree that an enhanced greenhouse effect is occurring as a result of greenhouse gas emissions caused by human activities, primarily the burning of fossil fuels and patterns of land-use.¹ Consequences include rising global average temperatures, rising sea levels due to melting of polar ice, increased frequency of extreme weather events, decreases in biodiversity, changes in natural systems and a wide range of health effects. These consequences are already being observed and global greenhouse gas emissions to date mean we are already locked into further global warming and climatic changes.²

As climate science has matured, the case for rapid and significant changes to human behaviours that contribute to climate change, has become increasingly compelling. Since the release of the latest Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) in 2007, which showed predicted climate change for a range of global emissions scenarios, a strong and growing body of evidence demonstrates that the predictions, despite being alarming in themselves, are in fact conservative.³ The following statement was agreed upon in March 2009 at the closure of the International Scientific Congress on Climate Change, held in Copenhagen and attended by more than 2,500 delegates:

Recent observations confirm that, given high rates of observed emissions, the worst-case IPCC scenario trajectories (or even worse) are being realised. For many key parameters, the climate system is already moving beyond the patterns of natural variability within which our society and economy have developed and thrived. These parameters include global mean surface temperature, sea level rise, ocean and ice sheet dynamics, ocean acidification, and extreme climatic events. There is a significant risk that many of the trends will accelerate, leading to an increasing risk of abrupt or irreversible climatic shifts.⁴

The physical changes described here have dramatic implications for human health and human settlements around the world. Effects on health are not just related to increased occurrence of natural disasters such as hurricanes, heatwaves, floods and droughts, but also occur through diseases that are highly sensitive to changing temperature and precipitation patterns, including, for example, malaria, dengue fever and diarrhoea.⁵ Health impacts are a particular concern for the poorest people in all countries, but especially developing countries, which are widely expected to suffer the most due to greater vulnerability and lesser adaptive capacity than richer, developed nations. Associated with this are major concerns regarding greater resource scarcity, desertification and rising sea levels leading to mass population movement or displacement of people – so-called ‘climate refugees’.⁶

Research continues to develop about the human implications of climate change on global and regional scales. This discussion paper draws attention to the local impacts

in Australia and more specifically Victoria, in order to provide the context in which Victorian councils will need to operate.

2.2 Climate change impacts in Australia and Victoria

Relative to other developed countries, Australia is particularly vulnerable to climate change as it is a hot and dry continent, sensitive to small climate variations and already facing substantial water scarcity problems.⁷ Australia's vulnerability also stems from its relatively high dependence on the economic contribution of greenhouse-gas intensive, primary industries such as mining and agriculture, and to its position in a region of developing countries, expected to face severe problems due to climate change impacts with little capacity to adapt.⁸

Naturally, different areas of Australia will be affected by climate change in different ways. The outlook for Victoria is particularly serious when considered in light of findings presented in the recent *State of the Environment Report* produced by the Commissioner for Environmental Sustainability. The report describes Victoria's environmental future, stating that it is in perilous danger with implications for all citizens.⁹ Regardless of climate projections and understanding of climate change, many Victorians have noticed unusual weather and its impacts. Victoria is already dealing with drought and living through most of the hottest years on record. The summer of 2009 provided a further tragic reminder of the implications of harsher weather conditions, presenting Victorians with an extreme heatwave and the worst recorded bushfires ever to occur in Australia. Whilst it is important to recognise that it is not possible to directly attribute any individual weather event to climate change, the conditions observed are consistent with what climate scientists have predicted for south-east Australia, as confirmed by the Federal Minister for Climate Change, Penny Wong, who recently stated that:

Eleven of the hottest years in history have been in the last twelve, and we also note, particularly in the southern part of Australia, we're seeing less rainfall, All of this is consistent with climate change, and all of this is consistent with what scientists told us would happen.¹⁰

According to CSIRO predictions for Victoria (based on IPCC estimations), the following changes can be expected by 2070 if the current high emissions trajectory continues:¹¹

- Between 1.8 to 3.8 °C temperature rise
- Up to 25% less annual rainfall (but rainfall events to be more intense in some regions with a greater risk of flash flooding)
- More frequent heat waves and warm nights (including more than double the average number of days per year over 35 °C in Melbourne)
- Increasing evaporation rates
- Increased days of high fire danger
- Much less snowfall
- Less frost
- More frequent drought
- Greater risk of coastal erosion and inundation.

Of course, changes will vary across different regions of Victoria and region-specific information, developed by CSIRO, is made available by the Victorian Government.¹² Unfortunately, given that the above predictions are based on IPCC estimations, there is increasing reason to believe that, without urgent global action to reduce greenhouse gas emissions, Victorians will have to cope with even more dramatic changes to the weather patterns they are used to.¹³

2.3 Policy choices and the Australian policy context

Increasingly alarming scientific evidence about the pace and scale of climate change places great pressure on political leaders to take action. It is important to recognise that social impacts of climate change will be influenced not only by changes to the physical environment (direct impacts) but also by changes to the policy context as governments at all levels make decisions to address climate change.

The policy response to climate change is commonly separated into two different aims – mitigation and adaptation:

- **Mitigation** refers to implementing policies or strategies to reduce greenhouse gas sources and emissions and enhance greenhouse gas sinks.¹⁴ Mitigation reduces climate change impacts by reducing the rate and magnitude of global warming.¹⁵
- **Adaptation** refers to adjustment in natural or human systems in response to actual or expected climate change effects, which moderates harm or exploits beneficial opportunities. Adaptation measures can be anticipatory, autonomous or planned¹⁶ and increase the ability of a system to cope with a changing climate, including variability and extreme events.¹⁷

To date, failure to mitigate greenhouse gas emissions means we are globally 'locked into' some effects of climate change such as increases in temperature and sea levels. This is due to the complex nature of the earth's climate system and time-lags between the release of greenhouse gas emissions and their effects. The result is that even if humans were able to halt all greenhouse gas emissions overnight, some degree of adaptation will still be necessary.¹⁸

Whilst it can be useful to distinguish between these different policy aims, it should be noted that the distinction is not always clear-cut and some policies can meet both objectives simultaneously. For example, better insulation of homes can be considered a form of adaptation to higher temperatures and more frequent heatwaves, whilst at the same time reducing emissions by reducing the demand for energy-intensive heating and cooling.

The Liveable and Just project recognises that there are profound and serious limitations to adaptation – whether determined by physical realities (i.e. the basic conditions required for human life) or derived from cultural or shared perceptions of what is considered acceptable to a given society.¹⁹ The project addresses this in part by focusing on how local government can plan for changes in demand for services they provide and effectively respond to social tensions and inequities that arise from climate change.

The extent of social impacts of climate change will, of course, be linked to the extent of physical disruption to weather patterns and ecosystems on which societies depend. If action to avoid dangerous climate change is not taken or is slow, impacts on health, exposure to extreme weather events and consequences for access to essential goods and services such as food, water and housing will be more striking. Any analysis of social impacts of climate change is therefore inevitably as much an argument for prevention – that is, urgent, very strong mitigation of greenhouse gases – as it is a warning of the need to plan for change and begin to adapt. For many, the extent of social disruption projected to arise from climate change will be untenable, especially when considered in light of significant systemic social problems that already exist.

Although this document highlights the need for adaptation it also, implicitly, adds yet further reinforcement to the argument for urgent transformative action to address the causes of global warming through reducing greenhouse gas emissions.

The climate change policy context in Australia

Whilst global mechanisms and collaboration are essential to make many of the large mitigation gains, domestic mitigation and adaptation remain powerful tools in supporting health and wellbeing in Australia.

It is clear that many of the functions that will be affected by climate change are outside the sphere of influence of councils, or are heavily reliant upon resources, legislation or funding from other levels of government.²⁰ The actions open to Victorian local government to respond to climate change have to be considered in the context of both Commonwealth and Victorian Government climate change policy. Key Commonwealth and Victorian Government climate change activities and policies are listed in *Table 1*.

Table 1: Key Commonwealth and Victorian Government climate change policies

<p>Commonwealth Government²¹</p> <ul style="list-style-type: none"> - <i>Engagement with international climate policy frameworks</i> - Participation in international negotiations as a party to the United Nations Framework Convention on Climate Change - <i>Emissions reporting and reduction</i> - Introduction of a national emissions trading scheme (the proposed Carbon Pollution Reduction Scheme) to reduce Australia's greenhouse gas emissions by between 5-25% on 2000 levels, mandatory reporting for corporate greenhouse gas emissions through the <i>National Greenhouse and Energy Reporting Act (2007)</i> - <i>Energy efficiency</i> - A range of voluntary programs to encourage energy efficiency in industry and households - <i>Renewable energy</i> - Encouraging production of energy from renewable sources through the Mandatory Renewable Energy Target (MRET) - <i>Adaptation</i> - Funding research into adaptation through the creation of an Australian Centre for Climate Change Adaptation and development of a National Climate Adaptation Framework through the Council of Australian Governments (COAG).
<p>Victorian Government²²</p> <p>The Victorian Government is developing a Climate Change Green Paper, to be released in the first half of 2009, which will constitute a strategic framework for its future actions on climate change.</p> <ul style="list-style-type: none"> - <i>Energy efficiency</i> – Victorian Energy Efficiency Target (VEET) of a 10 percent reduction in household emissions by 2010 - <i>Renewable energy</i> – Victorian Renewable Energy Target (VRET) which mandates a minimum 10 percent renewable energy in Victoria by 2016 - <i>Adaptation</i> – Victorian Climate Change Adaptation Program including a range of adaptation-related initiatives, many of which involve directly engaging local government and their communities.

The climate change policy context continues to change rapidly and Victorian councils will need to ensure they keep abreast of the latest climate policy developments and understand the implications for their own decision-making. In particular, the introduction of a national emissions trading scheme through the proposed Carbon Pollution Reduction Scheme (CPRS) will have dramatic implications for councils (see, for example, the briefing on the CPRS by the Municipal Association of Victoria²³) and is likely to formalise the control of mitigation efforts at the national level by ensuring that Australia's overall emissions reductions are wholly determined by the Commonwealth Government. At a state level, the strategic focus of the Victorian Government, to be made explicit upon the release of their Climate Change Green Paper, will also be highly significant for the consideration of climate change responses by local government.

3. The social impacts of climate change: what are they and who is most vulnerable?

As understanding of the physical impacts of climate change becomes more sophisticated, it is increasingly important that societies are able to translate what this means for human life. In Australia, the focus to date has been on understanding how climate change will impact on the domestic economy²⁴, including our industries, terms of trade, jobs and the insurance sector²⁵, as well as risks to infrastructure and human settlements²⁶, with significant attention also given to health impacts²⁷. All of the research on climate change impacts indicates there will be repercussions for individuals and communities. Regardless of the pace or depth of action on climate change globally, there will be important social and equity impacts to address locally. This section considers what they are and who is most vulnerable.

There is emerging interest in and evidence of the social impacts of climate change in Australia. To date, government consideration of social impacts to date has largely focussed on policy development around carbon trading and mitigation and the financial impacts of policy changes on low-income families.²⁸ More widely there has been an increase in advocacy and writing about the social and equity impacts of climate change. This has been driven by non-government organisations that support disadvantaged and vulnerable populations such as the Australian Council of Social Service (ACOSS) (and their Victorian arm, VCOSS), the Brotherhood of St Laurence, Mission Australia, Kildonan Uniting Care and St Vincent de Paul.²⁹

3.1 What are the social impacts of climate change?

The social impacts of climate change are those concerned with effects on the quality of life experienced by individuals and communities. The International Association for Impact Assessment defines social impacts as ‘all impacts on humans and on all the ways in which people and communities interact with their socio-cultural, economic and biophysical surroundings’.³⁰ The social impacts of climate change clearly encompass a very broad range of factors that can be categorised in numerous ways. The categorisation presented in this section is based on insights from the vast literature on the social determinants of health³¹, poverty and social disadvantage and community wellbeing and social cohesion.

A growing evidence base is emerging to explain the likely impacts of climate change on the factors presented below in *Table 2* which underpin the quality of life of people and their communities.

Table 2: The social impacts of climate change

HEALTH AND WELLBEING
<ul style="list-style-type: none"> • Physical health <p>Climate change is already impacting on the global burden of disease and premature death, with World Health Organisation (WHO) figures estimating climate change could already be causing the loss of over 150,000 lives per year.³² Health impacts of climate change can occur through a number of direct and indirect causal pathways with key health impacts in Australia arising from extreme weather events, infectious diseases and drought-related problems.³³</p> <p>According to the Victorian Government Department of Human Services, Victorians face a broad range of negative health impacts including:³⁴</p> <ul style="list-style-type: none"> - injury or death as a result of extreme weather events including heatwaves, wind, storms, floods and fires; - exposure to waterborne disease and toxins due to affected or unreliable water sources;

<ul style="list-style-type: none"> - exposure to food poisoning due to warmer temperatures and malnutrition linked to food insecurity; - higher respiratory disease incidence linked to pollutants and increased rates of asthma and hay fever due to increased aeroallergens; - increased exposure to vector-borne and other infectious diseases such as epidemic polyarthritis caused by Ross River virus and Barmah Forest virus; and - increased exposure to ultraviolet radiation.
<ul style="list-style-type: none"> • Mental health <p>In addition to physical health impacts, studies are beginning to highlight the mental health impacts arising from climate change, which may be even more pervasive. Many individuals are likely to experience ongoing emotional stress and anxiety for a variety of reasons, which may act cumulatively. Implications of climate change for mental health include:³⁵</p> <ul style="list-style-type: none"> - direct mental health impacts due to traumatic events, extreme weather events (e.g. floods or bushfires) or longer-term changes to the land (e.g. persistent drought or coastal inundation) and forced migration; - indirect mental health impacts through impacts on determinants of mental health such as economic security and participation, social inclusion and freedom from violence and discrimination. Indirect impacts also include distress from decreased security in protection of housing and assets due to extreme weather; or arising from fewer opportunities for relaxation associated with the use of public open spaces³⁶; and - emotional distress arising from awareness of climate change as a global environmental threat and what it means for the future.
<ul style="list-style-type: none"> • Public safety <p>Studies in the UK have suggested safety and crime levels may be compromised by climate change due to increased international and terrestrial conflict in other parts of the world resulting from greater resource scarcity, and potential social unrest over resources locally.³⁷</p>

<h2>ACCESS TO ESSENTIAL GOODS AND SERVICES</h2>
<ul style="list-style-type: none"> • Food <p>Increased droughts and extreme weather events will impact on Australia's local and imported food supply leading to price rises and scarcity.³⁸ Increased food prices are particularly a concern for people on low incomes already much more likely to lack access to fresh food.³⁹</p>
<ul style="list-style-type: none"> • Water <p>Water scarcity and drought are already impacting heavily on Victorians. Infrastructure investment by the Victorian Government to increase water supply will raise water costs. People on low incomes will struggle to afford water tanks or water saving technologies.⁴⁰</p>
<ul style="list-style-type: none"> • Housing <p>As the climate alters, housing will need to alter to provide adequate protection from heat and extreme weather events, such as bushfires, floods and coastal storm surges. Costs of retrofitting are often prohibitive for people on low incomes.⁴¹ In some areas, building or maintaining existing houses may not be viable, leading to the need for people (and potentially whole communities) to relocate.</p>
<ul style="list-style-type: none"> • Energy <p>Climate change, and policies to respond to it, will impact on Victorians' access to energy and, therefore, access to the vital services it provides such as heating, cooling and cooking. Extreme weather events can damage crucial energy system infrastructure and disrupt transmission, causing power shortages and blackouts. Climate policy-related increases in electricity and petrol prices, and the availability and affordability of alternatives, also present significant social justice concerns,⁴² given that transforming our energy system to withstand impacts of climate change and transition to renewable energy will increase energy costs. For example, modelling undertaken for the Brotherhood of St Laurence considered the impact of emissions trading, finding that a carbon price of \$25 per ton would increase living costs by 2.5% for low income households compared to 1.85% for higher income households.⁴³</p>
<ul style="list-style-type: none"> • Transport <p>Higher costs of petrol and public transport due to 'peak oil', increasing electricity costs and policies to reduce emissions will make mobility more expensive. Research undertaken for the Brotherhood of St Laurence has shown that the imposition of a carbon price will have a greater adverse impact on low-income Victorian households with limited access to public transport and those in neighbourhoods affected by poor urban planning.⁴⁴ Transport infrastructure can also suffer damage or malfunction during extreme weather events, for example, much of Melbourne's rail network was not able to operate during the heatwave of early 2009, which has implications for those reliant on public transport.</p>
<ul style="list-style-type: none"> • Emergency management services <p>Climate change is predicted to cause an increased incidence of 'disaster' situations such as bushfires, flash flooding, heatwaves and drought. The impact of such disasters will be felt acutely locally and will require well planned and executed action by local government in partnership with other organisations and service deliverers.</p>
<ul style="list-style-type: none"> • Health services

Extreme weather events can disrupt access to essential services including health services. Increased demand, given the physical and mental health implications outlined above, is also likely to place increasing pressure on an already stressed health system in Victoria.

- **Education and training**

Extreme weather events have the potential to disrupt education by affecting ability to attend classes.⁴⁵ However, climate change is also expected to bring positive social impacts by opening up new educational and training opportunities relating to adaptation and the shift to a low-carbon economy.⁴⁶

SOCIAL INEQUITY AND DISADVANTAGE

A report entitled *Climate Change and Equity in Victoria*, released by Friends of the Earth Australia in 2007, highlighted the likelihood that climate change will entrench and exacerbate existing inequalities faced by low-income earners in all of the areas referred to above.⁴⁷ Increased resource scarcity will lead to price increases in the market, with potential negative impacts on individuals' health and wellbeing and the social equity of our communities.

Low-income households spend a disproportionate amount of their disposable income on essentials such as electricity and food, which will increase in cost through climate change and with the introduction of carbon trading (through the CPRS).⁴⁸ If swift and radical mitigation is executed through Commonwealth and state government actions, immediate social impacts on constituents will largely take the form of increased financial pressures. These pressures will be greatest on those least able to accommodate price increases in essential goods and services and disadvantaged populations will need to be protected against economic exclusion or hardship.

LIVELIHOOD – EMPLOYMENT AND FINANCIAL SECURITY

- **Employment and job security**

Climate change is likely to impact on livelihoods and the continued economic viability of rural and regional areas across Victoria.⁴⁹ Industries at most risk due to climate change include agriculture and tourism. Increased drought and bushfires will reduce productivity and increase stress on rural communities, particularly those engaged in snow-based tourism, fruit and dairy industries, forage and animal production.⁵⁰ Changes to emissions intensive industries such as energy production, transport, agriculture, mining and heavy industry to reduce greenhouse gas emissions will also impact on employment.

However, there is an increasing focus on the potential for new job opportunities associated with the need to transition to a low-carbon economy.⁵¹ There will be new jobs in 'green' industries such as renewable energy and energy efficiency sectors, for example.

- **Access to insurance**

It is likely that an increased knowledge of climate change impacts especially more frequent and intense extreme weather events will affect the availability and affordability of insurance.⁵²

COMMUNITY CONNECTEDNESS

- **Cultural participation**

Climate change will impact on our everyday way of life, including access to public open space for sport and recreation⁵³ and other community facilities. Community facilities allow citizens to interact and develop relationships with each other. Low cost and free facilities also allow widespread participation in leisure, fitness, health and social activities. Opportunities to access quality facilities support communities to be happier, healthier and more cohesive. The impact of loss of sports facilities and the use of public space such as parks and gardens is already being felt in some parts of Victoria due to drought and high temperatures.⁵⁴

Climate change will also alter land and seascapes which are important to the cultural beliefs and practices of some communities.⁵⁵

- **Social cohesion and sense of home and belonging**

Climate change is likely to lead to temporary or permanent displacement of communities affected by extreme weather events, coastal erosion, sea level rise or loss of economic viability. Social cohesion could be negatively affected by a lack of integration support for climate refugees or displaced peoples. It could also be affected by divisive or unfair adaptation policies. For example, in the UK conflicts have emerged between communities who will and will not be protected by coastal flood risk management.⁵⁶ There is also some evidence that, where there is good management of evacuation and clean up processes, climate change impacts can enhance community spirit and cohesion.⁵⁷

Social and equity implications are attached to both direct and indirect impacts of climate change. Climate change also interacts in complex ways with existing trends to

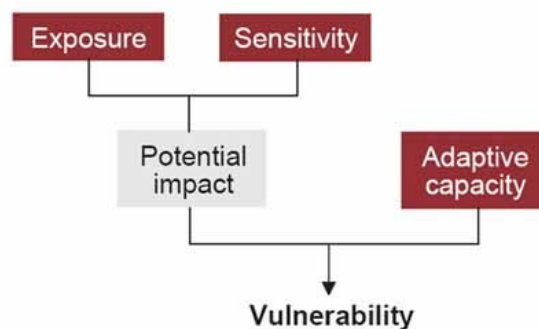
produce flow-on social outcomes that may not be immediately or obviously attributable to climate change. For example, aside from direct impacts, there are also:⁵⁸

- *secondary* or *indirect* impacts – occurring away from the original effect or as a result of a complex pathway. For example, medium to long term disruption to the education system due to a large number of families being displaced by extreme weather conditions
- *cumulative* impacts – for example, the impact on the ability to insure a property following a series of flood events; and
- *synergistic* impacts – where effects tend to interact to produce a total effect greater than the sum of the individual effects. For example, the impact on a family's ability to work after a flooding event combined with mental health problems as a result of living with flood risk.

3.2 Who is most vulnerable?

The severity of social impacts caused by climate change in a given Victorian community can be predicted to some extent by understanding and measuring the vulnerability of that community. Vulnerability to climate change consists of several components (*Figure 1*) including the *exposure* of a given system (e.g. a community) to climate change impacts, the *sensitivity*, or extent to which changes will affect it in its current form, and the *adaptive capacity*, or capacity to change in a way that makes it better equipped to deal with external impacts.⁵⁹

Figure 1 – Vulnerability and its components⁶⁰



In the context of this project, vulnerability is therefore the overall degree of susceptibility to, or inability to cope with, adverse impacts of climate change. Whilst *exposure* to climate change is determined by climate science, and in particular an improved understanding of the physical impacts at the local level, further explanation is required to understand and identify the factors that contribute to a given community's *sensitivity* and *adaptive capacity*.

Social systems, such as friends and family networks, community networks and civic organisations, that respond to changes or shocks without 'significant decline in their crucial functions' are said to have high *adaptive capacity*.⁶¹ Closely related to the concept of *adaptive capacity* is the concept of *resilience*, which means "the capacity of a system to absorb disturbance and reorganise while undergoing change, so as to still retain essentially the same function, structure, identity and feedbacks".⁶² Characteristics associated with greater resilience include the degree to which the particular system (or community) is capable of self-organisation, flexibility in problem-solving, as well as storing and learning from knowledge and experience.⁶³

Communities that are resilient will be better able to handle the changes and shocks arising from climate change. The importance of understanding the characteristics of a resilient community and working to enhance community capacity to respond to climate change impacts is increasingly recognised by policy-makers and community leaders.

The social causes of vulnerability and resilience, affecting individuals and communities' adaptation to climate change, are highly differentiated and will vary by location, population and individual circumstance.⁶⁴ Existing indicators of community wellbeing (see Community Indicators Victoria for local information)⁶⁵ have the potential to shed light on the coping capacity of a community when combined with understanding of exposure to both direct climate change impacts and climate change policy impacts. There is a need for further work in this area, including overcoming the difficulties that arise from integrating appropriate information across bio-physical and social-economic spheres.⁶⁶

3.3 Trends and characteristics affecting vulnerability in Victoria

When considering what the social impacts of climate change will be in their area, individual local governments need to consider how social factors interact with their geographic location (metropolitan, rural, regional) and the demographics of their constituent communities.

Certain Victorian communities are particularly vulnerable to climate change whether due to their geographic location, socio-economic situation, or a combination of both. *Table 3* below provides some examples of places and population groups considered particularly vulnerable to climate change based on current literature. Whilst this table presents examples, it is important that individual local governments investigate and deepen their own understanding of the level and sources of vulnerability or resilience of their local communities to climate change.

Table 3: Examples of vulnerability to climate change by place and population group⁶⁷

By place	By population group
<ul style="list-style-type: none"> ▪ Rural, drought-affected communities ▪ Alpine areas ▪ Coastal communities ▪ Communities with a high dependence on fossil-fuel, mining and other heavy industries ▪ Isolated or remote communities ▪ Inner urban areas (low capacity for food production) ▪ Outer-suburban areas (with poor transport options) ▪ Flood-prone areas 	<ul style="list-style-type: none"> ▪ People living on low-incomes ▪ Population groups over-represented in poverty (including older people, unemployed, people with disabilities, single parents, carers, newly arrived communities and refugees and Indigenous communities) ▪ Population groups over-represented as socially excluded (for example isolated older people, people with mental health issues and people with disabilities) ▪ People who rely on motorised transport including people with disabilities ▪ People facing existing barriers to workforce participation, including people with low levels of education and training and/or limited work history ▪ Indigenous communities.⁶⁸ ▪ Populations at particular risk of discrimination including recently arrived migrants and refugees

ⁱ These difficulties and the complex nature of undertaking vulnerability assessments were noted in a significant study mapping climate change vulnerability in the Sydney Coastal Councils Group (SCCG), recently undertaken by researchers from CSIRO. They found that representing linkages between the different spheres is challenging, particularly given that information is often collected at different scales and comes in different forms (both qualitative and quantitative).

4. Local government roles and responsibilities and the social impacts of climate change

In Victoria local government is responsible for implementing a diverse range of programs, policies and regulations set by the Victorian and Commonwealth Governments. Councils must also respond to the needs of their local community and they have the power to set local regulations and by-laws and provide a range of discretionary services.⁶⁹

Though there are many different ways of grouping the activities undertaken by Victorian councils, the following list provides some broad categories⁷⁰:

- Land-use planning and building
- Waste management
- Health and human services
- Community services
- Economic management
- Environmental services
- Infrastructure and asset management services
- Enforcement of local laws – relating to issues such as noise, graffiti, parking and animal management.

The 79 Victorian councils differ dramatically in terms of their size, demographic, revenue base and the resources they have available. As a result, the key challenges and priorities identified and the services provided can vary significantly between councils.

Local government manages built, human and natural systems and climate change will impact upon all these systems.⁷¹ Despite the fact that state and federal government control many of the overarching elements that influence climate change action, local government maintains a unique and critical position to make significant gains in this area. This is not only due to its specific authority but also its proximity to communities, leadership and exemplar capacity and local knowledge and networks.⁷² These strengths and roles, as well as the responsibilities of local government and where they coincide with the social impacts of climate change are described in this section.

4.1 Where do local government services and social impacts of climate change coincide?

Following on from the above discussion of the social impacts of climate change, the critical question for councils is: which of their activities and responsibilities are likely to be affected by the social implications of climate change in Victoria and how? This section maps Victorian council activities against the social dimensions explained in the previous section. A number of examples are presented though further work is needed at the council level to 'localise' or make relevant to each particular council with its own unique social issues, vulnerabilities to climate change, and set of programs and services.

The following table (*Table 4*) shows the factors, identified in the previous section as comprising the key social impacts of climate change, mapped against some important local government services or responsibilities.ⁱⁱ

Table 4: Climate change social impacts and related local government services

Climate change social impact area	Local government services
Health and wellbeing (including physical health, mental health and public safety)	<ul style="list-style-type: none"> ▪ Home and community care programs ▪ Maternal and child health services ▪ Family and children's services ▪ Disability services ▪ Cultural development ▪ Leisure and recreation services / facilities ▪ Housing ▪ Public health planning and services ▪ Migrant and indigenous services ▪ Community safety measures e.g. street lighting, fire prevention plans ▪ Footpath construction and maintenance: walking accessibility to shops, leisure, work and public transport ▪ Waste management: prevent spreading of disease ▪ Maintenance of the <i>Food Act 1984</i> including inspecting premises, food safety programs, food complaints, temporary events, safety standards and labelling requirements
Access to Food	<ul style="list-style-type: none"> ▪ Rural land use management- implications for food security ▪ Food provided to the community e.g. Home and community care and childcare ▪ Maintenance of the <i>Food Act 1984</i> ▪ Granting permits for farmers markets
Access to Water	<ul style="list-style-type: none"> ▪ Catchment management: protecting water catchments to maintain water supply and quality ▪ Salinity and water quality ▪ Reticulated sewerage ▪ Community river monitoring e.g. Waterwatch program ▪ Drainage ▪ Water re-use programs ▪ Septic tanks ▪ Grey water on public parks / gardens ▪ Stormwater management ▪ Swimming pools
Access to, and quality of, housing	<ul style="list-style-type: none"> ▪ Housing planning schemes ▪ Emergency planning around housing protection against extreme weather and climatic events e.g. bushfires, floods ▪ Land use regulation ▪ Built form sustainability e.g. energy efficient housing
Access to energy	<ul style="list-style-type: none"> ▪ Environmental sustainability: solar heating for buildings and pools, provision of walking tracks and paths ▪ Reducing energy usage of councils, providing example to constituents ▪ Switching to low carbon use facilities etc. for sustainable delivery of health and community services ▪ Education and support of community and business behaviour change and energy usage
Access to transport	<ul style="list-style-type: none"> ▪ Environmental sustainability: provision of walking tracks and paths ▪ Maintenance of walking and bike paths ▪ Urban planning to encourage walking, cycling and public

ⁱⁱ Information about local government responsibilities are taken from MAV, VLGA and Victorian Government documents.

	<ul style="list-style-type: none"> transport usage ▪ Community safety: ensuring neighbourhoods are safe and inviting to participate in active transport ▪ Road management: to reduce wear and tear on vehicles and reduce excess fuel consumption ▪ Local 'peak oil' planning
Emergency management	<ul style="list-style-type: none"> ▪ Emergency prevention and protection: community disaster/ emergency plans ▪ Community information: community directory, websites / online services ▪ Counselling and support groups ▪ Services to care for community displaced by extreme weather events (shelter, food, health care) ▪ Community safety measures e.g. fire prevention plans
Social inequity and disadvantage, social exclusion and discrimination	<ul style="list-style-type: none"> ▪ Counselling and support groups ▪ Home and community care programs ▪ Maternal and child health services ▪ Family and children's services ▪ Disability services ▪ Housing ▪ Public health planning and services ▪ Migrant and indigenous services
Livelihood including employment, financial security, access to education and training	<ul style="list-style-type: none"> ▪ Community jobs programs ▪ Traineeships ▪ Local government employment ▪ Support tourism industry and area vitality ▪ Local economic development
Community connectedness including cultural participation, a sense of home and belonging and strength of social networks	<ul style="list-style-type: none"> ▪ Leisure facilities: Recreation and community centres ▪ Public space maintenance ▪ Town Halls, council buildings ▪ Sustainable facilities in terms of energy and water usage ▪ Public libraries: information on climate change, wellbeing, adaptation etc. linking communities. ▪ Cultural development: festivals, public art, theatre productions ▪ Home and community care programs ▪ Maternal and child health services: nutrition, parenting advice ▪ Family and children's services: childcare, playgroups, youth and family counselling and services, school holiday programs, art programs ▪ Leisure and recreation centres ▪ Preschools, kindergartens ▪ Local industry networks ▪ Wheelchair access in the community ▪ Migrant and indigenous services including interpreting aides ▪ Support for sports clubs

4.2 Roles and responsibilities of local government in responding to social impacts of climate change

There is significant cross-over between services provided by local government and key areas in which climate change impacts on quality of life and the factors that contribute to healthy communities. Local government has both formal and moral obligations to respond.

As noted above, both Commonwealth and Victorian Government policies and programs will continue to determine the context in which local government responds to the social impacts of climate change. It is clearly important that there are strong relationships between the different tiers of government so that they can work together on planning and implementation of climate change responses and ensure both consistency and complementarity. The relationship between the Victorian Government

and Victorian councils is particularly important, and is being addressed through initiatives such as the Victorian Local Sustainability Accord, which encourages strong local-State partnerships to advance environmental sustainability.

The extent to which Victorian councils have legal responsibilities relating to climate change is complex and depends on the particular local government function being considered. Two areas in which liability to climate change may arise are compensation or common law negligence due to a breach of duty of care.⁷³ⁱⁱⁱ Obligations may be shared, implemented or defined by other agencies and authorities in other levels of government. It is essential that councils investigate and understand the extent of their responsibility.⁷⁴

Significant attention and resources are beginning to be allocated to assist local government carry out risk management processes to identify likely impacts of climate change on council operations and to initiate development of adaptation plans.⁷⁵ There is growing recognition that planning amidst climate change uncertainty will require local government (and other organisations) to re-evaluate decision-making based on past and predictable climatic conditions. Several organisations have developed resources to guide councils through adaptation planning processes (see Appendix 1 for some examples).

The Liveable and Just project highlights the need for social and equity impacts of climate change to be a key consideration for councils in understanding and acting in response to climate change risks. Local government should acknowledge and explore, not only the susceptibility of landscapes and infrastructure to climate change, but also how this can interact with the resilience and coping capacity of diverse communities.⁷⁶ It is clear from the examples of local government services in *Table 4* that councils play a key role in developing, supporting and protecting the health and wellbeing of their communities.

Victorian councils are in a position to play a powerful role in minimising the impacts of climate change on their communities. They have a number of tools and capabilities available to them with the potential for adjustment to incorporate greater recognition and planning for the social impacts of climate change. These functions include:⁷⁷

- informing and educating communities;
- supporting local community action;
- statutory and strategic planning;
- designing and operating infrastructure and facilities; and
- local regulation and financial instruments.

In addition councils can provide leadership and advocate to other levels of government on behalf of local populations. In their role as representatives of the local community and business, councils can provide inspiration to others through exhibiting best-practice, supporting innovation and making climate positive outcomes a central priority.

ⁱⁱⁱ According to a recent paper exploring the potential legal liability around climate change faced by local government in Australia, decisions of local government may be legally challenged on the grounds that they contribute to greenhouse gas emissions, for instance, development approvals for power stations or other polluting activities, or that they *unreasonably fail to take into account the likely effects of climate change* when exercising a wide range of their service, planning and development activities (England, 2007). The study noted that: "At the current time, the threshold of unreasonableness is high – but over time the range of actions that may qualify as highly unreasonable is likely to expand." (*Ibid.*)

Councils can help their constituents to understand the urgency of responding to climate change and lead in advocating for disadvantaged, marginalised and vulnerable constituents.

In Australia, social services and related foundations are drawing attention to social impacts of climate change at the local level in relation to social justice and equity. This is driven in part by recognition of the limitations of their resources and incapacity to support growing numbers of those in need. Those providing support services to vulnerable populations will need to adapt and plan to ensure they can continue to provide support, in the context of population growth and a changed, harsher climate. Given that local government is also a major provider of social and community services, it is well-placed to identify specific areas of growing demand for services and will also need to ensure it has the resources and capacity to meet growing demand.

PART II – Where to from here? A framework for discussion and input from the local government sector

Part II presents a framework to guide workshops to be held with local government employees as part of the Liveable and Just project.

5. Workshop Framework

The Liveable and Just workshop series is intended to explore answers to the following four questions, relating to the social impacts of climate change and local government responses:

- **What do we know?**
- **What does this mean for us?**
- **What can we do?**
- **What do we need to do it?**

5.1 What do we know?

Part I of this discussion paper has addressed this first question – what do we know? It provides an overview of climate change trends and implications, describes the likely social impacts and the factors underpinning different degrees of vulnerability to these impacts, and outlines some of the key activities of local government expected to be affected by social impacts of climate change.

At the workshops, more localised information will be presented regarding regional physical climate change projections. Workshop participants will also bring with them their own knowledge and experience about the ‘way things work’ in their local setting, in their councils or organisations and communities. All of this provides a necessary starting point from which to progress to the next questions.

5.2 What does this mean for us?

It is clear that social impacts of climate change will be different depending on the particular local government area in question, due to the complex array of factors that determine their exposure and vulnerability to climate change.

To begin to draw out the local implications, workshop participants will be asked to consider the following questions:

Discussion questions

- ❖ *What are likely to be the key social impacts in our area and for our communities?*
- ❖ *In what ways will this affect the social services we provide and our interactions with local communities?*

5.3 What can we do?

As noted in Part I of this discussion paper, there are several functions of local government, and tools available to it, that can be applied to addressing the social impacts of climate change. These include: informing and educating communities, statutory and strategic planning, designing and operating infrastructure and facilities, applying local regulation and using financial instruments, as well as providing advocacy and leadership.

In order to begin to determine appropriate responses by local government, workshop participants will be asked to consider the following questions:

Discussion questions

- ❖ *Given the predicted social impacts of climate change, the roles of local government and tools available to it, what would an effective response look like?*
- ❖ *What does the council do that it might need to do differently?*
- ❖ *What steps will have to be taken in your local area?*

5.4 What do we need to do it?

Finally, and in order to inform the next stage of Liveable and Just, workshop participants are asked to brainstorm responses to the following questions:

Discussion questions

- ❖ *What are the barriers and opportunities to taking immediate action?*
- ❖ *How can existing local partnerships be utilised and what new relationships need to be formed or strengthened to improve local responses?*
- ❖ *What further resources would be useful to improve your responses to social and equity impacts of climate change?*
- ❖ *How could the Liveable and Just project help i.e. what tools would you like to see it provide?*

Appendix 1. Existing local government toolkits and resources for adaptation to climate change

Resource	Information included	Web reference
International Council for Local Environmental Initiatives (ICLEI) Oceania, Cities for Climate Protection – Adaptation Initiative: Local Government Climate Change Adaptation Toolkit	Outlines an adaptive management process and provides a set of tools and exercises to assist councils work through the process	http://www.iclei.org/fileadmin/user_upload/documents/ANZ/CCP/CCP-AU/Projects/AI/AdaptationToolkit/Toolkit_CCPAdaptation_Final.pdf
Adapting to Climate Change: A Queensland Local Government Guide.	Climate change and core business for local government, context and bigger tools, where to for here and workshop resources	http://www.lgaq.asn.au/imported/LGAQ_LIBRARY/LGAQ_FACILITY/Corporate/Administration,%20Internal%20Operations%20and%20Building/LGAQ_Climate%20Change%20Adaptation%20Guide.pdf
Managing energy in local government, Department of Environment, Water, Heritage and the Arts (webpage)	Background, council sheets, strategy sheets, energy sheets (developing an energy efficient program), tools	http://www.environment.gov.au/settlements/local/publications/workbook.html
Local Government and Shires Association Plus (LGSA Plus) climate change action pack, web based tool.	Climate change checklist Establishing a baseline (includes council case-studies of climate change local action plans	http://www.lgsa-plus.net.au/www/html/1871-climate-change-checklist.asp?intSiteID=2 http://www.lgsa-plus.net.au/www/html/1874-establish-a-baseline.asp?intSiteID=2
Western Australian Local Government Association (WALGA): Climate Change and Local Government: Being Aware and Being Prepared	Concerns of members, gaps and opportunities, toolkit development	http://www.walga.asn.au/about/policy/environment_waste/env_sub_docs/climate_change_draft.pdf
Local Government Responses to Climate Change: Canadian Jurisdictions Outside of British Columbia	Local government policy toolbox: regulations, incentives, information, investment, institutional arrangements and departments Evaluating policy options, adaptation strategies	http://publicadmin.uvic.ca/cps/lgkp/pdfs/broumand_finalpaper.pdf
Institute for Local Government, California Climate Action Network Best Practices Framework	Categories include: efficient transportation, climate friendly purchasing, energy efficiency and conservation, water and water waste systems, renewable energy and low carbon fuels, storing and offsetting carbon emissions, promoting community and individual action, green building, land use and community design	http://www.cacities.org/resource_files/26286.BestPracticesFramework%20v5.0.pdf

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