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VCCCAR Implementing Adaptation Project Report 1

Climate Change Adaptation in the Primary Health and Community Welfare Sector in Victoria

A literature review and analysis of institutional context and organisational needs for adaptation

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Disclaimer
The views expressed herein do not represent those of the Victorian Government, VCCCAR, or any of the organisations that participated in the study. They are the views and interpretations of the report authors.

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Abbreviations

ACOSS	Australian Council of Social Service
AGO	Australian Greenhouse Office (Australian Government)
BoM	Bureau of Meteorology
CAHA	Climate And Health Alliance
CEFP	Clean Energy Futures Package
CFA	Country Fire Authority
CMA	Catchment Management Authority
COAG	Commonwealth Of Australian Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSO	Community Service Organisation
DEPI	Department of Environment & Primary Industries (Victorian Government)
DCC	Department of Climate Change (Australian Government)
DCCEE	Department of Climate Change and Energy Efficiency (Australian Government)
DoH	Department of Health (Victorian Government)
DoHA	Department of Health & Ageing (Australian Government)
DHS	Department of Human Services (Victorian Government)
DIICCSRTE	Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (Australian Government)
DSE	Department of Sustainability & Environment (Victorian Government)
EDO	Environmental Defender's Office
EO	Executive Officer
GP	General Practitioner
IPCC	Intergovernmental Panel on Climate Change
LGA	Local Government Area
MPHWP	Municipal Public Health and Wellbeing Plan
ML	Medicare Local
NDIS	National Disability Insurance Scheme
NCCARF	National Climate Change Adaptation Research Facility
NGO	Non-Government Organisation
NHHN	National Health & Hospitals Network
NHR	National Health Reform
NRM	Natural Resource Management
PC	Productivity Commission
PCP	Primary Care Partnership
SECCCA	South East Councils Climate Change Alliance
VCCCAR	Victorian Centre for Climate Change Adaptation Research
VCOSS	Victorian Council of Social Service
WHO	World Health Organisation

Executive Summary

This report is a major research output of a project entitled 'Implementing tools to increase adaptive capacity in the community and natural resource management sectors', funded by the Victorian Government through the Victorian Centre for Climate Change Adaptation Research (VCCCAR). The project consists of several phases of desktop-based and empirical and action research. The main goal of the research phase that led to this review was to gain a better understanding of the climate change adaptation capabilities and needs of three types of service providers funded by the Victorian Government: catchment management authorities (CMAs), community service organisations (CSOs), and primary care partnerships (PCPs).

This document focuses on the primary health and community welfare sector, in particular community service organisations (CSOs) and primary care partnerships (PCP) in Victoria. It **reviews existing academic and grey literatures on climate change adaptation** in the context of the primary health and community services sector and **analyses the institutional context for climate change adaptation**. In includes a review of international, Australian and Victorian published material on adaptation in the primary health and community welfare sectors, to determine the current status of planning for and responding to climate change impacts. As part of the review, the policy framing and governance arrangements surrounding climate change impacts and adaptation were also investigated. The analysis of interviews conducted among CSOs and PCPs across Victoria identified **a range of sectoral and organisational adaptation barriers, needs and capacities**.

Key points from the literature review

- Despite climate change adaptation being a fairly recent field of research, **the impacts of climate change on human health and wellbeing are increasingly well documented and discussed** in the academic literature. Nevertheless, many experts call for further research to better contextualise adaptation within specific geographic and institutional contexts and to better link it to existing policy fields. The pervasive and interdependent nature of climate change impacts and adaptation compounds existing challenges in an already complex planning and policy arena. In the face of climate change, underlying social, economic and environmental issues that are at the core of the sector's efforts, such as poverty, inequality, and lack of resources, increasingly require **adaptive planning and management responses**.
- The literature shows that there are **many irrefutable links between climate change and human health and well-being**, with an abundance of sources identifying specific direct and indirect physical impacts. There is less evidence and concern about a gap in knowledge regarding the more insidious, indirect impacts of climate change, especially with regard to mental health and well-being and less researched geographic areas such as rural Australia. The community level is likely to be impacted by climate change events and trends in many different ways, from disruptions to vital infrastructure and lack of access to services, to potentially adverse effects on social cohesion and an exacerbation of existing inequalities. However, community level impacts will be extremely differentiated and specific to local contexts, and communities are also ideally placed to plan for and respond to many of the potential health and well-being impacts of climate change. In the literature,

there is emerging consensus that **using climate change adaptation as an opportunity to systematically improve community resilience** is one of the most important adaptation outcomes that primary health and community welfare sector organisations can lead and facilitate.

- Climate justice is an emerging yet much debated issue in the literature. In a local, community level context it highlights that **climate change impacts are expected to manifest unequally across society**, both geographically and socially. There is agreement that already vulnerable groups are most susceptible; however knowledge about who these groups are and how their existing vulnerability influences their ability to adapt to climate change is limited and dependent to local context. **Many organisations in the community welfare sector are well placed to appraise local differences, identify those most in need, and deliver just and equitable support programs**. Support for the sector in the form of more localised, accessible information on adaptation action and associated impacts is required, and the literature reviewed called for further work in research and policy to facilitate awareness raising and capacity building across the sector. Although beginning to emerge in some areas, **sector specific guidance to inform local adaptive planning** is still lacking, including methodologies for engaging individuals, communities and organisations in developing well informed adaptation responses.

- In terms of adaptation governance, **responsibilities and mandates for adaptation across the sector appear to be largely unresolved or fragmented** at best. While reforms are currently in progress at a national level to address the fragmented nature of the health system, there is little evidence regarding the specific inclusion of climate change adaptation in these changes. At the operational level, CSOs and PCPs receive some procedural guidance on considering climate change impacts as part of their planning and operations; however this guidance also suggests that climate change adaptation is not currently considered a priority for the sector. Sector-wide efforts, supported by government initiatives, for **building institutions that enable adaptation and improving existing systems to address climate change** will be important strategies to increase adaptive capacity.

Key points from the analysis of interviews

- The interviews revealed the various ways in which respondents **discussed climate change and climate change adaptation within the context of their roles and responsibilities**. Most commonly, climate change adaptation was linked to the following issues: supporting groups most vulnerable to climate change impacts; impacts of climate change on environmental or social justice; impacts of climate change on the environmental sustainability of organisations; supporting economically disadvantaged groups; energy efficiency and energy affordability; community development; and building community resilience.

- Climate change was framed in many different ways. **The scientific categories of mitigation and adaptation were often merged**, in particular with regard to absorbing energy cost increases by investing in energy efficiency measures. The term 'climate change' was deemed too abstract and not directly related to the sector's core business. Many climate change effects that clients and agencies were dealing with were related to secondary, socio-economic impacts, such as rising costs for energy and food.

- Interview data from participants in rural areas showed that the **acceptance of climate change and an understanding of the associated terminology** were not as widespread in rural areas than in urban areas.

- Respondents made frequent references to impacts of climate change that the primary health and community welfare sector, their organisations, or they as individuals had experienced. **The vast majority of respondents were of the opinion that climate change was 'real'**, that is was an important current issue, and that climate change adaptation was necessary for society to be able to cope with climate change impacts.

- The majority of respondents was aware of and had a good knowledge of the most significant direct biophysical impacts of climate change projected for Victoria. Regionally specific biophysical impacts of climate change that CSO and PCP participants had encountered as part of their work were bushfires, drought, heatwaves, and flooding.

- Most respondents supported the view that climate change can lead to a range of social and economic effects that follow climate-related disasters. Observed effects included: **temporary or permanent displacement, mental health problems, loss or disruption of employment due to illness, homelessness and many other forms of social and economic deprivation, as well as increased domestic violence.**

- In the sector, awareness is increasing regarding the ethical implications of climate change and various notions of **climate justice**. Distributional justice concerns were particularly common, i.e. acknowledging that the social and economic impacts of climate change are unequally distributed across society, which adversely and disproportionately affects groups that are already economically disadvantaged, both locally and globally.

- In line with the literature, **people living with disabilities** were commonly considered to be **particularly vulnerable** to climate change, often due to underlying social and economic issues that disadvantage them vis-à-vis other segments of the population.

- Interviewees talked about the fact that many vulnerable people 'fall through the cracks of the system' and don't receive any support services from a CSO. Often, **services provided by CSOs are the main form of social contact for vulnerable or marginalised people**, and individuals that do not or cannot access CSO services may miss out on important information and support in the lead up to, during or after extreme weather events.

- Significant **differences existed between rural and urban settings** with regard to the understanding and perception of climate change impacts, their relevance for the primary health and community welfare sector. These differences influence the roles and possibilities for adaptation among primary health and community welfare sector organisation.

- **Localised information on climate change impacts** was considered an important ingredient for facilitating adaptation in the sector. Such information needs to be sector-specific, focused on the practical level of people's day-to-day lives, and provided in an easily accessible manner. Simply providing more information is not the solution; rather more targeted information is needed that can readily be applied to a local or organisational context.

- Many participants were of the opinion that **the roles of different levels of government in adaptation were not particularly clear** and that it would be useful for the sector as a whole if these

roles were clarified. There was a general sense that much of the current thinking of government institutions in the primary health and community welfare sector were focused on reactive responses, for example after an extreme weather event, rather than on planning ahead for climate change adaptation.

In the conclusions to this report, several 'possibilities' for adaptation in the primary health and community welfare sector are identified:

- Embedding adaptation in strategic planning
- Providing easier access to practical adaptation guidance
- Developing in-house adaptation champions
- Promoting PCPs as platforms for adaptation action
- Community engagement and networking on adaptation
- Providing and promoting safe and well-adapted housing
- Moving from emergency response to proactive adaptation

These are ideas, based on the peer-reviewed literature and our interpretation of the interviews and document analysis, for advancing adaptation in Victoria's primary health and community welfare sector.

1 Introduction

This document constitutes the first part of a key deliverable of the research project: 'Implementing tools to increase adaptive capacity in the community and natural resource management sectors', funded by the Victorian Government through the Victorian Centre for Climate Change Adaptation Research (VCCCAR). It contains a review of institutional context and literature on climate change adaptation needs and capacities for the primary health and community welfare sector in Victoria.

1.1 About the project

The project entitled 'Implementing tools to increase adaptive capacity in the community and natural resources management sectors' (Implementing Adaptation in the following) runs from 31 August 2012 until 30 November 2013 and is being carried out by researchers at RMIT University and Monash University. The project is governed by a Research Team, Project Management Group and Project Advisory Committee (VCCCAR, 2013).

The main goal of this research project is to gain a better understanding of the adaptation capabilities and needs of three types of government service providers and funded agencies across three groups from two sectors: catchment management authorities (CMAs), community service organisations (CSOs), and primary care partnerships (PCPs) and to facilitate the implementation and testing of tools and methodologies for climate change adaptation planning.

This project explores three key research themes, designed to analyse individual, organisational and sectoral contexts, test adaptation tools, and build capacity for future adaptation success.

Theme 1: Exploring the organisational context for adaptation in government agencies and service providers

- How are these types of organisations and broader sectors currently planning for climate change adaptation and what enables or constrains their status?
- Who are the key stakeholders within and outside of the organisations influencing adaptation?
- How do individuals within these organisations see how climate change adaptation ought to happen?

Theme 2: Design and testing of tools and support mechanisms for climate change adaptability

- How can adaptation planning tools assist organisations in planning for climate change adaptation?

- What evidence is there of changes in adaptation planning practice or learning as a consequence of using these tools?
- Can/should it be assumed that existing tools and support mechanism are the best fit for the identified needs, or are customised, individual support mechanisms more meaningful?

Theme 3: Building organisational capacity for participation in adaptation

- What competencies need to be built within government service providers/funded agencies to successfully adapt to climate change?
- What are the elements of a program that would effectively engage and support the community and natural resource management sectors in climate change adaptation?

The research approach is action-research oriented and is designed in three phases:

Phase 1: The purpose of the first phase of the research was to scope the scale and purpose of the whole project. This was achieved through a cross-sector workshop for stakeholders to contribute initial ideas for the project and reflections on the state of climate change adaptation in their sectors. The outcomes of the first phase are published in a workshop discussion paper (Fünfgeld et al., 2012) and a workshop summary report (Fünfgeld et al., 2012b).

Phase 2: The purpose of the second phase of the research was to achieve a better understanding of the adaptation situation in each sector, including perceived adaptation needs and opportunities, as well as barriers or constraints. This involved conducting semi-structured interviews with individuals and groups from organisations in each sector, as well as a review of the peer-reviewed literature and document analysis of relevant publications.

Phase 3: The third phase of the research is intended to involve a series of action-research inquiries with specific organisations (or clusters of organisations) from each sector. The general purpose is to engage in cycles of participatory action-led learning and reflection around climate change adaptation 'tools', in order to learn more about each organisation's individual context and identify further options for adaptation action. It is envisaged that this will result in practical adaptation outcomes for the participants and their organisations, an increase in adaptive learning capacity, and valuable research insights for the researchers involved; potentially in a co-research mode with project participants.

This report presents the findings of the literature and document review (as part of project phase 2) for the primary health and community welfare sectors. A second part to this report focuses on analysis and interpretation of qualitative data collected in Victoria from interviews with PCP and CSO representatives.

Since the project is exploring climate change adaptation processes in both the community and natural resource management sectors, a separate report focusing on the reviewed literature on climate change adaptation for the natural resource management sector is available.

The project has established an information-sharing relationship with two projects funded by the National Climate Change Adaptation Research Facility (NCCARF: see Section 2.1 below): 'Leading Adaptation Practices and Support Strategies for Australia: An International and Australian Review of Products and Tools' (NCCARF, 2012a; Webb & Beh, 2013) and 'Adapting the Community Sector for Climate Extremes' (NCCARF, 2011; Mallon et al., 2013).

1.2 Overview of this document

This report consists of six main sections with three appendices. Section 2 outlines the current institutional context for the primary health and community welfare sector including the National and State policy state of affairs. Section 3 outlines the research framework and methodology utilised to undertake both the literature review and data collection through interview across PCPs and CSOs in Victoria.

Sections 4 to 7 are the key outcomes from this investigation thus far, with section 4 proposing the key themes that emerged throughout the interrogated literature. Sections 5 to 7 discusses common themes across the sector and unique to each organisation type.

Sections 8 outlines possibilities for promoting adaptation in the primary health and community welfare sector, reflecting on the themes encountered throughout this investigation, and section 9 making concluding comments. A full list of references cited throughout the report is provided as well as Appendices outlining interview structure (

Appendix 1: Outline used for semi-structured interviews), de-identified record of respondents (Appendix 2: De-identified record of respondents), and the data analysis coding framework that guided the qualitative analytical work conducted as part of this study (Appendix 3: VCCCAR IA NVivo Coding Framework).

1.3 Definitions

For the purpose of this review, **climate change adaptation** is defined as adjustments in ecological, social or economic systems in response to observed or expected changes in climatic parameters, such as temperature, rainfall and humidity (McCarthy et al., 2001; Adger et al., 2005). Seen from this perspective, the main purpose of adaptation is to reduce or alleviate negative impacts of climate change, or to exploit new opportunities arising from such change.

Adaptive capacity refers to a system's ability to reduce its exposure and sensitivity to climate change impacts and adjust to existing impacts (IPCC, 2007).

Community service organisations (CSOs) are groups that provide a service established to meet the needs of community members requiring care, support, protection or accommodation. This includes out-of-home care services, disability services, community-based child and family services, housing and other types of support for disadvantaged people. In Victoria, CSOs can register with the Department of Human Services (DHS) if they meet the Department's service standards. DHS funds over 600 CSOs (Victorian Government, 2013a).

The Victorian State Government, through the Department of Health, funds 30 **Primary Care Partnerships** (PCPs) to improve access to services and continuity of care for people through improved service coordination, as well as chronic disease prevention, integrated health promotion, and partnership development. The overall aim of a PCP is to improve the health and well-being of the population by better co-ordination of health service planning and service delivery. PCPs are made up of a diverse range of member agencies. All PCPs include a combination of hospitals, community health organisations, divisions of general practice (through Medicare Locals, discussed later at p.18) and local government as core members of the partnerships. Other types of agencies such as area mental health, drug treatment and disability services are also members of PCPs (Victorian Government, 2013b).

There is significant overlap between CSOs and PCPs, because many organisations that fall under the definition of CSOs above are member agencies of PCPs. When referring to the combined group of CSOs and PCPs in this report, the term **primary health and community welfare sector** is used.

Our review and the associated research focussed on organisational level needs and contexts for enabling or hindering adaptation in the primary health and community welfare sector in Victoria. While it is acknowledge the important role that individuals can play in adaptation, this investigation is primarily interested in the relationship between individual action (and individual ability to act) and a given organisational context. **Organisations** are defined as 'collectives that have agency' (Pelling et al. 2007) – groups of actors that work towards a common goal in a coordinated manner (Berkhout 2012).

Organisations and their ability to act are shaped by **institutions** that constitute the 'rules of the game' (North 1990). This last distinction is important, as the term 'organisation' and not 'institution' is used to refer to public sector entities, such as government departments, CSOs and PCPs. This research endeavours to elicit a better understanding about how organisations can 'learn to adapt', are embedded in their social and natural environments, and how this shapes their goals, structure and ways of adapting to climate change (Berkhout et al. 2006).

2 Current institutional context for primary health and community welfare sector adaptation in Victoria

Climate change adaptation is an emerging agenda for the primary health and community welfare sector in Victoria. This means that to date little concrete, explicit policy guidance exists specifically for the sector on how it should respond to and plan for the impacts of climate change. However, a number of policy initiatives are being developed within the national and state level institutional fabric that have implications for the way the sector and its constituent parts will be able to adapt to climate change. In the following overview, a selection of important developments is discussed.

2.1 National policy and institutional context

Federal policy guidance on adaptation

The Australian Government Department of Climate Change and Energy Efficiency (DCCEE), now amalgamated into The Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (DIICCSRTE, March 2013; formerly the Department of Climate Change) had the role to provide national climate change adaptation policy leadership and coordination. The Council of Australian Governments (COAG) agreed to the National Climate Change Adaptation Framework in April 2007, tabled by DCCEE, which covered a range of cooperative actions between all Australian governments over the following five to seven years (Australian Government, 2007).The Department worked with partners (including states and territories) and stakeholders in vulnerable sectors and regions to assist decision makers to better manage the risks from climate change impacts. DCCEE funded and delivered a number of key policies and programs intended to assist decision-makers with determining climate change adaptation strategies and actions, including research programs (see National adaptation research below).

In 2010 the Department of Climate Change (DCC; now DIICCSRTE) put forward a vision for adapting to the impacts of climate change by publishing a position paper *Adapting to Climate Change in Australia: An Australian Government Position Paper* (Australian Government, 2010a). The now DIICCSRTE (formerly DCCEE) continues to hold the established position outlined in this paper (Australian Government, 2010a) which includes: 'building community resilience and establishing the right conditions for people to adapt, taking climate change into account in the management of Commonwealth assets and programs, providing sounds scientific information; and leading national reform' (Australian Government, 2013a). The paper identified six national adaptation priority areas for action of which community welfare and/or health was not included. However, funding for adaptation research through the National Climate Change Adaptation Research Facility (NCCARF)'s node of Human Health included scope for research applicable for the primary health and community welfare sector. In addition, the Climate Commission, with support from the DCCEE in 2011 released a special report on climate change and health (Hughes & McMichael, 2011).

To facilitate climate change risk management for adaptation in the government and business sector, the Australian Greenhouse Office (the institutional precursor to the Department of Climate Change) in 2006 published a guidance document, *Climate Change Impacts and Risk Management: A Guide for Business and Government* (Australian Government, 2006). The guide, modelled on the Australian risk management standard (Standards Australia/Standards New Zealand, 2009), recommended a method for assessing climate change risks and opportunities. It had significant uptake in the government sector, particular in local government. However, the proposed methodology is complex, focuses on corporate organisational risks, and seems best suited to larger government organisations. Although CSOs in Victoria are encouraged to refer to the guide for including climate change risks in their planning and decision-making (Victorian Government, 2012a), no documented evidence of experiences with using the framework in the primary health and community welfare sector has been found.

Some observers criticise a lack of mandate from a national level and call for leadership in public policy to address the need for increasing awareness of the linkages between climate change and health among health and medical practitioners. At the federal level, it is argued, a gap exists at the crossover between health and climate change, with no department claiming responsibility for regulation (Spickett et al., 2008; Climate and Health Alliance, 2012).

In the absence of national sector-specific policies for adaptation, it can be expected that a number of reforms currently underway at federal level will play a key role in influencing the ability of CSOs and PCPs to adapt to climate change. Some key national policy initiatives currently taking place are discussed in more detail below. These are likely to affect the funding and operations of CSOs and PCPs.

Productivity Commission inquiry

In September 2011, the Australian Government requested the Productivity Commission to undertake an inquiry into regulatory and policy barriers to effective climate change adaptation. The objective of the inquiry was to assist the Council of Australian Governments (COAG) to advance climate change adaptation reforms in Australia by identifying the highest priority reforms through examining policy frameworks and costs and benefits of adaptation options (Australian Government, 2011a :iv).

The Productivity Commission's draft report *Barriers to Effective Climate Change Adaptation*, released in April 2012 (Australian Government, 2012a), identified six key barriers to effective climate change adaptation: market failures, regulatory barriers, governance and institutional barriers and behavioural barriers (ibid.). The report noted that 'government-provided health services could come under increased pressure due to climate change' (ibid: p.8). However, with regard to barriers to adaptation in the health sector, the draft report concluded:

> *'While there may be specific changes to health service provision that could be warranted to deal with climate change, the Commission has received little information on specific barriers to adaptation by health services. As many of the climate change impacts on health are uncertain and some are likely to be gradual […], the Commission considers that the best overall response is to*

ensure that health services are appropriately resourced and meet the community's needs efficiently and flexibly.' (Australian Government, 2012a:p.222f)

Submissions were invited in response to the draft report, with 168 officially registered and public hearings held in Sydney, Melbourne, Canberra and Adelaide during June and July of 2012 (Australian Government, 2013b). In response to the draft report, however, some primary health and community welfare sector organisations have expressed their concern regarding the rather narrow definition of adaptation barriers, which excludes structural social and institutional barriers that may be particularly relevant for disadvantaged groups that the primary health and community welfare sector engages with (Brotherhood of St Laurence, 2012). Such structural barriers may include the lack of financial resources for low-income and disadvantaged groups, and the lack of community readiness, created in part by a lack of relevant information accessible to low-income groups (ibid).

The Productivity Commission's Final report was submitted to the Australian Government in September 2012, with the Government response released in March of this year (Australian Government, 2013c). In its response, the Australian Government endorsed the Productivity Commission findings of four key roles for governments in securing adaptation to climate change including:

Managing climate change risks in their own activities, ensuring regulatory and policy frameworks do not impede private risk management, corrections of market failures where the benefits to the community exceed the costs and 'managing the distributional consequences of climate change for disadvantaged and vulnerable groups' (Australian Government, 2013c: p.1).

Although raising the issue of climate impacts on existing vulnerable groups in the document overview, there was no specific mention of the Government's role, nor a suggested strategic direction to address this (Australian Government, 2013c).

Climate Adaptation Outlook: A Proposed National Adaptation Assessment Framework

Developed in association with CSIRO, ANU, and with advice sought through an expert group, DIICCSRTE released the *Climate Adaptation Outlook: A Proposed Adaptation Assessment Framework* (the Outlook) in June 2013.The Outlook is proposed to be the first in a series of reports on how well placed Australia is to manage the unavoidable impacts of climate change, including Australian businesses, communities and institutions (Australian Government, 2013d). The report outlines a national assessment framework with twelve suggested high-level indicators to track progress in adaptation, and is open for consultation through the second half of 2013. A final assessment framework is proposed for released in early 2014 and will include a more complete set of adaptation indicators. A first assessment using the framework will be released in 2014 to determine a current state of adaptation for the nation.

The Outlook outlines *drivers* (impacts that climate change will have on various sectors), *activities* (adaptation actions) and *outcomes* (the ideal situation of Australians managing climate risks whilst

enjoying economic, social and environmental opportunities) for adaptation. In direct relation to the primary health and community welfare sector, a specific outcome highlighted by the Outlook is "disadvantaged groups can managed their own climate risks" (Australian Government, 2013d: p.21). Drawing directly on the aforementioned ACOSS study 'Adapting the Community Sector for Climate Extremes' (Mallon et al., 2013; discussed in more detail at p.20), the Outlook acknowledges that "disadvantaged groups are generally less able to manage risks of all types because they lack financial, social, educational or other resources" (Australian Government, 2013d: p.39) and that the next couple of decades are critical to support disadvantaged groups build resilience to climate impacts. Enabling disadvantaged groups to have the resilience and capacity to manage risks they face from climate change impacts is highlighted as one of the three key propositions of what 'good adaptation' means for Australia (Australian Government, 2013d: p.39).

Among the twelve indicators proposed in the Outlook and to be developed further, the needs of disadvantaged groups feature heavily. Roles and responsibilities for government and other entities are not yet detailed within the Outlook, and DIICCSRTE encourages submission to the Outlook in order to influence the final assessment framework.

National Health Reform and Medicare Locals

In August 2011, the Australian Government, through the Department of Health and Ageing (DoHA) in partnership with States and Territories implemented an agreement for the National Health Reform (NHR), through the National Health and Hospitals Network (NHHN). This has led to the roll-out of a series of key reform components until the end of 2014, to restructure the organisation, funding and delivery of health and aged care. The reforms entail a shift in policy and funding responsibility from the states and territories to a national approach (Australian Government, 2011b).

Among the reforms, and pertinent to CSOs and PCPs in Victoria, was the proposal for 'increased transparency and accountability across the health and aged care system', and the proposal for 'a stronger primary care system supported by the joint planning with States and Territories and the establishment of Medicare Locals' (Stough et al., 2010; Australian Government, 2011b). Concrete changes to primary health care have been proposed by:

- Building over 60 GP Super Clinics
- Trialling new approaches to diabetes management;
- Increases in after-hours access to GPs
- Funding approximately 425 primary health care upgrades and
- Establishing a nation-wide network of 61 so-called *Medicare Locals* from July 1, 2011

(Australian Government, 2010b)

Medicare Locals have evolved of Divisions of General Practice, which were local area organisations funded by the Australia Government to improve the quality of General Practices. Medicare Locals are

overseen by a national body accountable to the Australian Government and act as independent, non-governmental primary health care organisations, which aim to coordinate health care delivery, tackle local health care needs and address service gaps. Placed regionally, they seek to address gaps in the currently fragmented Australian health care system, both within the primary health care sector and across hospitals, aged care and specialist care. Fragmentation and disintegration of primary health care services has reportedly led to often the most vulnerable patients and rural populations missing out on treatment and services. Medicare Locals have been designed to address this problem with five overarching objectives:

1. Identification of the health needs of local areas and development of locally focused and responsive services;
2. Improving the patient journey through developing integrated and coordinated services;
3. Provide support to clinicians and service providers to improve patient care;
4. Facilitation of the implementation and successful performance of primary health care initiatives and programs; and
5. Be efficient and accountable with strong governance and effective management.

(Australian Government, 2010b: p.5)

The implications of the Medicare Local health reform on CSOs and PCPs are not entirely clear. It appears that Medicare Locals will continue in the tradition of Divisions of General Practice and remain focused on biomedical and disease issues, with limited attention and capacity provided to address social and social service issues. The *National Health Reform: Progress and Delivery* (Australian Government, 2011b) report paints a picture of integration between Medicare Locals and PCPs to address historic fragmentation in the health sector as a whole. Actual Medicare Local engagement with PCPs across the state is variable, with some continuing member agency status as Divisions of General Practice, co-location occurs in some instances, some PCPs share a Chair with their affiliate Medicare Local and shared executive board representation also occurs in some instances (Pers. comm. S. Lavery (DoH), 2013a). The funding arrangements for Medicare Locals differ in magnitude and structure to that of PCPs (Australian Government, 2011b), and the evolution of the primary health care sector through the reform will only become evident in time – including what impacts the changes may have on the ability of organisations in the primary health and community welfare sector to adapt to climate change.

National Disability Insurance Scheme

The National Disability Insurance Scheme (NDIS) is the result of a recommendation from the Productivity Commission's report in 2011 to review the provision of funding for disability services (Australian Government, 2011b). The NDIS aims to provide a funding pool based on actuarial assessment of need, rather than historical budget allocations and will have an impact on the way CSOs are funded, depending on their specific service delivery. The NDIS legislation (Australian Government, 2013e) was introduced to parliament in draft for feedback on 29th of November 2012, and the Bill suggested a framework for a national scheme that includes eligibility criteria, age requirements and

what constitutes reasonable and necessary support for people with a disability for wherever they live (Australian Government, 2011b).

The Gillard government delivered DisabilityCare Australia in May 2013, investing $14.3 billion out of the 2013-14 budget over seven years with rollout agreements achieved in all States and Territories except Western Australia at the date of this report (Australian Government, 2013e). Once fully rolled out, the scheme proposes to provide support for around 460,000 people who have a significant and permanent disability that affects their communication, self-care or self-management.

It is likely that the NDIS will alter the way that CSOs are funded given that it will change funding criteria for individuals with a disability (Australian Government, 2011b), yet the specific ramifications are currently unclear (Australian Government, 2013e). Given that the NDIS proposes a focus on early intervention and taking a 'lifelong' approach, the type of service a CSO provides may be a dependent factor for funding consideration (Australian Government, 2011b). The NDIS proposes to nurture and support the vital networks that are critical to improving the lives of people with a disability, particularly families, carers and friendship groups, and in this manner may enhance service delivery and operations of CSOs in the context of additional pressures on the system, such as those related to climate change.

National adaptation research

Over the past five years, the research field of climate change and health has gained considerable momentum within Australia, underpinned by significant public funding. Between 2000 and 2008, the National Health and Medical Research Council (NHMRC) invested about $1.7 million in funding for research on health related climate change issues and included climate change and health as a priority research area for the first time in 2009 (National Health and Medical Research Council, 2011).

In 2008, the Australian Government established the National Climate Change Adaptation Research Facility (NCCARF) to 'harness and coordinate the capabilities of Australia's researchers, to generate and communicate the knowledge decision-makers need for successful adaptation to climate change' (NCCARF, 2012). This effort is supported by up to $50 million funding for national climate change adaptation research to build understanding and adaptive capacity to reduce sectoral and regional vulnerability to the impacts of climate change.

NCCARF established eight research networks, three of which are producing research directly related to the primary health and community welfare sector: Emergency Management, Human Health, and Social, Economic and Institutional Dimensions. For each network, a National Adaptation Research Plan was developed (NCCARF, 2012b; 2012c; 2012d). NCCARF's funding period ceases at the end of June, 2013 with no further funding secured at the time of report writing.

NCCARF & ACOSS – Extreme Weather, Climate Change and the Community Sector: Risks and Adaptations Project

The *Extreme Weather, Climate Change and the Community Sector – Risks and Adaptations* project, funded by NCCARF, undertaken in collaboration with the Australian Council of Social Service (ACOSS) and Climate Risk Pty. Ltd. commenced in 2011 with the final report was released early 2013 (Mallon et

al., 2013). The project investigated the capacity of community service organisations (CSOs) across Australia, to withstand climate change and extreme weather impacts. Its key objectives were:

'to understand the extent to which CSOs are aware of and prepared for climate change, particularly extreme weather risks to physical infrastructure and critical services; to investigate the consequences of climate-driven CSO service delivery failure for the people reliant on them to meet basic needs; to identify a comprehensive set of adaptation options to increase the resilience of CSOs and their clients; and to explore barriers to implementing adaptation' (Mallon et al., 2013: p.3)

The research, additional to an extensive literature review, comprised of a series of workshops to understand CSO exposure and vulnerability to the effects of climate change and the largest national survey of its kind with a total of 650 respondents attempting to complete the survey in July 2012 (Mallon et al., 2013: p.79). Major findings from the project include that CSOs are highly vulnerable and not well prepared to respond to climate change or extreme weather events, with many at risk of permanent closure and critical service disruption as a result of physical infrastructure damage due to an extreme weather event. The consequences of service disruption in this sector are dire for those experiencing poverty and inequality as they impact the basic needs for human survival: homelessness, deprivation, hunger, isolation and death. Despite the obvious vulnerability of these organisations in the context of climate change, the research concluded that the community sector has been overlooked in the climate change adaptation policy settings and research agendas of developed economies. The research found that CSOs have a stated desire to adapt to climate change and are well placed to contribute to community resilience if well prepared, however a number of barriers including lack of financial resources, skills and perception of inexperience surrounding adaptation, inhibit action (Mallon et al., 2013: p.4).

The report concluded with a set of recommendations to address the risk and adaptation needs of CSOs, outlining four key areas for action: resources, preparedness, building resilience to direct impacts and sharing risks through insurance and collaboration. Additional recommendations surrounded future research directions and suggestions for 'significant investment of funds to the community sector to enable organisational to begin the resilience-building task' (Mallon et al., 2013: p.5)

2.2 Victorian policy context

Victorian Climate Change Act 2010 and Climate Change Adaptation Plan

The Victorian Climate Change Act 2010 (Victorian Government, 2010a) came into effect on 1 July 2011 and is a framework for the Victorian Government to respond to climate change (covering both mitigation and adaptation) within the context of national policy. The Act requires the Victorian Government to develop a Climate Change Adaptation Plan, to be updated every four years.

A review of the Victorian Climate Change Act 2010 was triggered by the introduction of the Clean Energy Future Package (CEFP) into the Federal Parliament and was released in December, 2011. Section 19 of the Climate Change Act requires the Minister to undertake a Review of the Victorian legislation 'without delay'. The Victorian Climate Change Act Review (Victorian Government, 2011a)

with consideration of the CEFP, outlines that the national carbon price alters the policy role of State Government in mitigation to a complementary one, allowing the national price to operate effectively and efficiently. With this adjustment, the Review continues that the State Government retains a stronger role in adaptation policy which 'must be appropriately identified alongside that of other tiers of government, the private sector and individuals who each remain best placed to manage their own risk from climate change' (Victorian Government, 2011: p.v).

In regards to the State Climate Change Adaptation Plan (the Plan), the Review recommends that the Plan be retained in the Victorian Climate Change Act with some amendment (Victorian Government, 2011: ch.6, rec.4). The findings of Recommendation 4 pertaining to the Plan further outline that the plan should help guide private and public decision making and investment in adaptation and play a critical role in underlining adaptation as a shared responsibility (Victorian Government, 2011: p.22). The Plan should help better define the roles of different parties (government, business and the community), and promote a clearer understanding of each party's responsibility in adaptation enabling effective and co-ordinated climate change responses. Additionally, it is recommended that the Plan should be integrated with the State-wide planning policy as an incorporated document or through other appropriate means to improve its effectiveness (Victorian Government, 2011: p.24).

The Victorian Government response to the Climate Change Act Review was released in March 2012 and addressed each recommendation made in the Review (Victorian Government, 2012b). To Recommendation 4 pertaining to the Plan, the response from Victorian government was 'support' (Victorian Government, 2012b: p.5). The response outlined that the first Climate Change Adaptation Plan was currently being developed and that it would focus on ensuring appropriate ownership of risks including allocation between public and private sectors and coordination across all relevant government activities. Consideration was also to be given to defining key terms such as 'state-wide priorities' and 'strategic responses' (Victorian Government, 2012b: p.5).

Given the findings of the review and the Victorian Government's response as discussed above, the Climate Change Act 2010 will be retained with amendments. A formal amendment of the Act had not been undertaken at the time of writing.

The first 'whole-of-government' State-Wide Adaptation Plan was tabled in Parliament in March 2013 and addresses six key areas (Victorian Government, 2013c):

- Existing adaptation responses;
- Roles and responsibilities – providing greater guidance on the roles and responsibilities of state, local government and business;
- Key strategies and priorities – established key whole-of-government strategies and priorities;
- Integrating climate risk management – embedding climate risk management across all government departments and regions;
- Partnerships – building local government capability through closer partnerships; and

- Regional focus – recognising the importance of place-based responses to managing climate risks.

National adaptation priorities were identified through the plan based on the potential scale of economic, social and environmental impacts; the likely timing of potential impacts; and the importance of early action to manage risks (Victorian Government, 2013: p.9). The priorities are:

- Water resources;
- Coasts;
- Infrastructure;
- Natural ecosystems;
- Agriculture;
- Emergency management; and
- Vulnerable communities.

Of six identified critical roles for the Victorian government, particularly relevant to the primary health and community welfare sector are the key strategies of;

Managing risks to public assets and services managed by the Victorian Government – including embedding climate change considerations into risk management and business planning for assets and critical service delivery;

Building disaster resilience and integrated emergency management – including review and reforming emergency management arrangements;

Improving access to research and information for decision-making- by supporting coordinated research and information provision to assist all parties to adapt; and

Partnering with local government and communities – including providing a basis for ongoing engagement with Victorian councils and their communities. (Victorian Government, 2013: p.10)

The Plan states that the Victorian Government is continuing to plan for climate risks in health, including embedding climate change considerations into risk management and business planning, engaging with funded agencies and facilitating the inclusion of climate risks into all Municipal Public Health and Wellbeing Plans (MPHWPs). A key risk management of health and human services calls for further research as a priority to support planning for the long-term health impacts of climate change and locally relevant information in the context of varying vulnerable communities (Victorian Government, 2013).

With the first iteration of Victoria's Climate Change Adaptation Plan, it is clear that the implications of climate change on health are high on the agenda, running across several stated key strategic priorities within. Although a clear focus, it is not yet clear how these priorities within the plan will be

implemented and what 'next-steps' will be. The Climate Change Act calls for the Plan to include a report on implementation and effectiveness, yet does not outline further detail about plan implementation (Victorian Government, 2010a).

Investment in climate change adaptation research

The Victorian State Government established the Victorian Centre for Climate Change Adaptation Research (VCCCAR) in 2009 with $5 million in funding over five years, to assist government and other agencies by undertaking climate change adaptation research. The Department of Sustainability and Environment (DSE), now The Department of Environment and Primary Industries (DEPI) oversees the research conducted by VCCCAR's partner universities.

VCCCAR research is currently underway in the capacity of this project, co-funded by the Victorian Department of Health (DoH). The research aims to increase adaptive capacity in the community and natural resource management sectors by implementing adaptation planning and decision-making tools (VCCCAR, 2013). The DoH and the Department of Human Services (DHS) as well as the Australian Council of Social Service (ACOSS) are involved in overseeing the project.

Department of Human Services agreements with government funded agencies

In Victoria, a complex array of policies and regulations exist that regulated the funding conditions for government funded agencies. Some of these conditions directly or indirectly relate to climate change adaptation.

The Department of Human Services (DHS) Victoria provide a *Service Agreement Information Kit for Funded Organisations* ('The Kit'; Victorian Government, 2012a), which includes a section on departmental policies, procedures and initiatives, some of which are jointly held with the Department of Health. Section 4.12 of The Kit (Climate change Adaptation to Environmental Sustainability) states a joint DHS & DoH aim to ensure that:

> *' ..the human and health service sectors undertake appropriate measure to address climate change risks, such as exposure to more frequent and extreme weather events, its impacts on clients, services, assets and potential impacts on population health'*
>
> (Victorian Government, 2012a: s.4.12)

The Kit further encourages government funded organisations to:

- Include climate change risks within the scope of their risk management practices;
- Prepare climate change adaptation plans detailing adaptation goals, objectives and risk treatments, or embed measures within existing planning processes; and
- Implement climate adaptation measures in a timely manner. (Victorian Government, 2012a: p.i)

Specific guidance on how to implement these three points is not provided within The Kit, nor are these actions specifically mandated through either of the departments (Pers. comm. D. Voronoff (DHS), 2013b). Agencies are however encouraged to consider the Australian Government's *Climate Change Impacts & Risk Management: A Guide for Business and Government* (Australian Government, 2006: see Section 2.1 above).

Section 4.18 of The Kit addresses emergency management with respect to vulnerable groups, including:

- A vulnerable people in emergencies policy,
- A vulnerable people in emergencies protocol 1- emergency planning and screening'; and
- A vulnerable people in emergencies register (Victorian Government, 2012c).

Included at Section 4.18 of The Kit also outlines a primary policy document that emerged from the 2009 Victorian Bushfires Royal Commission under a recommendation to tailor bushfire safety options to the needs of individual communities, is the *Vulnerable People in Emergencies Policy* (Victorian Government, 2012d). A vulnerable person in this policy is defined as 'frail, and/or physically or cognitively impaired and unable to comprehend warnings and directions and/or respond in an emergency situation' (Victorian Government, 2012d: s.3.1). For the purposes of the policy, a series of factors and indicators are listed for consideration when identifying a vulnerable person. This policy is impact specific, with a section addressing bushfire response planning (Victorian Government, 2012d: s.3.3), directing proponents to the Country Fire Authority (CFA) website.

Section 4.19 of The Kit, outlines the Emergency Preparedness Clients and Services Policy, including summer preparedness kit 2012-13 (Victorian Government, 2012e). This policy has been developed to 'assist the human services sector to prepare for external hazards that may occur during the period of heightened risk associated with summer, such as bushfire, heatwave and floods' (Victorian Government, 2012e). This policy applies to all DHS clients and services that are: delivered from department-owned or managed facilities, delivered by departmental staff, provided through departmental funding or regulated by the department (Victorian Government, 2012e).

Department of Health emergency preparedness clients and services policy

CSOs that provide these services within the primary health and community welfare sector have requirements through the DHS to make appropriate preparation for extreme events such as bushfire, flood and heatwaves, see Box 1), mandated by the D*epartment of Health Emergency Preparedness Clients and Services Policy* (Pers. comm. T. Mitchell (DoH), 2013c; Victorian Government, 2012f).

There is no specific mention of climate change impacts in this policy (Pers. comm. T. Mitchell (DoH), 2013c). The policy describes responsibilities and considerations for emergency planning and preparedness, taking into consideration recommendations from the Victorian Bushfires Royal Commission and the Review of the 2010-11 Flood Warning and Response. The policy also aligns with

'the overarching direction in Victoria's emergency management arrangements requiring organisations to include an 'all hazards approach' in their planning' (Victorian Government, 2012f).

The scope of this policy applies to all Victorian DoH services and clients defined as those that are: 'delivered from department-owned or managed facilities, provided through departmental funding or supported residential services regulated by the department including private/non-government hospitals and residential aged care services' (Victorian Government, 2012f: p.2). The care and service type scope under the jurisdiction of the policy includes acute health, aged care, mental health and integrated care (Victorian Government, 2012f: p.3).

BOX 1: EXAMPLE OF CLIMATE CHANGE RELATED POLICY GUIDANCE: HEATWAVE PLANNING

Heatwave planning

The Victorian Department of Health developed a heatwave strategy and framework, after the Victorian Government identified heatwave planning as a local government policy priority in the Our Environment, our Future Sustainability Action Statement 2006 (Victorian Government, 2006).

The centrepiece of the heatwave framework is the Heatwave Plan for Victoria, published in 2011 to inform community members of the heat related health risks and to help coordinate an integrated, state-wide response to heatwaves in Victoria (Victorian Government, 2011c). Additional components include a Heatwave Planning Guide (Victorian Government, 2009), a Heatwave Plan Review Tool (Victorian Government, 2011d) and a heat health alert system for the State. The Heatwave Plan was developed in the aftermath of the January 2009 Victorian heatwave, which resulted in an estimated 374 additional deaths, above the five-year average for the same week of the year.

The Heatwave Plan lists the main heat-related health impacts and outlines processes to:

- Ensure heat health information and support is readily available to the community, at-risk groups and their carers
- Develop partnerships and collaborative arrangements to better respond to heatwaves
- Increase understanding of the health impacts of heatwaves on communities and their capacity to respond during heatwaves
- Manage public health emergencies during heatwaves more effectively
- Develop long-term and sustainable behavioural change to minimise the impacts of heatwaves on health and wellbeing.

(Victorian Government, 2011b: foreward)

Municipal Public Health and Wellbeing Planning

Under the Victorian Climate Change Act 2010 (Victorian Government, 2010a), effective 1 July 2011, local government in Victoria is required to 'have regard to climate change' when preparing a Municipal Public Health and Wellbeing Plan (MPHWP; Victorian Government, 2010: no.54, s.14 & schedule 1), and the DoH have developed guidance to support local government in their endeavours to do so (Victorian Government, 2012g; 2013b). Guidance for considering climate change impacts on the determinants of health (natural, built, social and economic) suggests inclusion of:

- Biophysical impacts,
- Long and short term economic, environmental, health and other social impacts,
- Beneficial and detrimental impacts,
- Direct and indirect impacts and
- Cumulative impacts associated with climate change"

(Victorian Government, 2012g: p.2)

Municipalities must include consideration of climate change in the profile of public health issues that face the municipality as a specific MPHWP priority, or inherent among other actions that facilitate adaptation (Victorian Government, 2012g). Specific actions or strategies that initiate adaptation should be identified and aligned with other MPHWP priorities, and this should include alignment of activities occurring across the organisation or within partner organisations (Victorian Government, 2012g).

Primary care partnerships and climate change adaptation

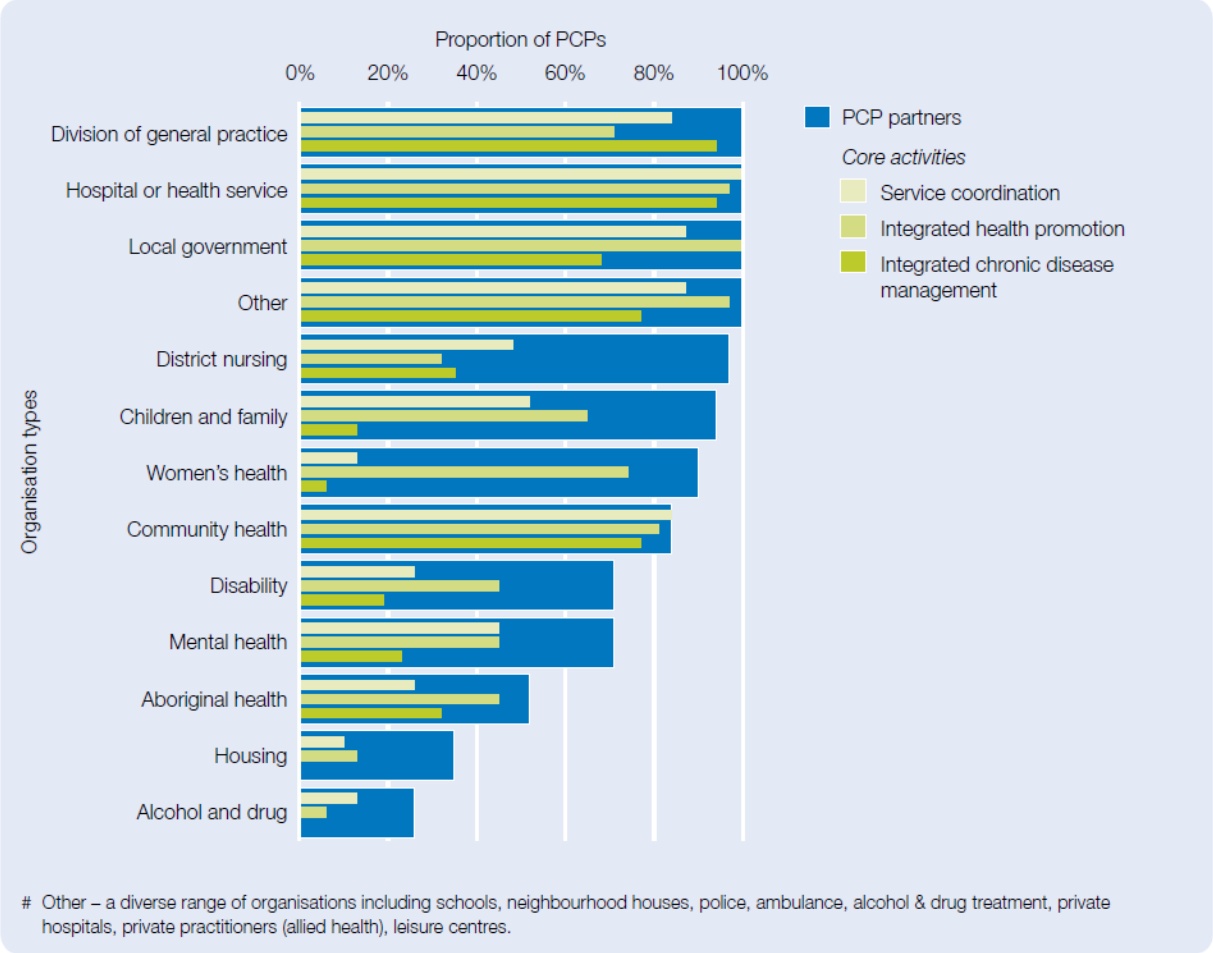
In 2000, the Victorian Government launched the Primary Care Partnerships Strategy (Victorian Government, 2000), with the main goals to:

- 'Improve the experience and outcomes for people who use primary care services' and to
- 'Reduce the preventable use of hospital, medical and residential services through a greater emphasis on health promotion programs and by responding to the early signs of disease and/or people's need for support'.

(Victorian Government, 2000: p.1)

To achieve this goal, funding was provided for groups of primary care providers to form voluntary alliances (called PCPs) in their communities, typically covering agencies across two or three local government areas (Victorian Government, 2000). Each of the 30 PCPs has the responsibility to develop and implement Community Health Plans for their communities, which includes activities in the three areas of service coordination, integrated health promotion and integrated chronic disease management (Victorian Government, 2000). Each of the PCPs has a diverse membership of partner agencies, representing the three core activities to different degrees (Figure 1).

FIGURE 1: TYPES OF ORGANISATIONS ENGAGED IN PRIMARY CARE PARTNERSHIPS AND THEIR RESPECTIVE FOCUS ON CORE ACTIVITIES



Source: Victorian Government (2010b: p.2)

Although PCPs are not specifically bound to include adaptation as a priority for their organisation, or embed adaptation within other priorities, they must adhere to priorities developed with their affiliate local government/s included in the MPHWP (Victorian Government, 2012h: reporting guidelines; Pers. comm. T Mitchell (DoH), 2013c). At the time of writing, this was the only formal requirement for PCPs to address climate change impacts. Voluntarily, if a PCP identifies climate change as being a significant determinant of health through a needs analysis for its catchment area, formal actions may be undertaken to include adaptation in operations and service delivery. This is the case, for example, with the South East Health Communities Partnerships[1], a PCP in the southeast of the Melbourne metropolitan area (SEHCP, n.d.).

[1] Since December 2012, SEHCP has been incorporated and now operates as 'Enliven Victoria'

PCPs are primarily funded through the Department of Health's division of Wellbeing, Integrated Care and Ageing (Victorian Government, 2011b). Recently, changes were made to the specified planning cycle for PCPs, to align the PCP, Community and Women's Health and Municipal Public Health and Wellbeing planning cycles (Victorian Government, 2012g: reporting guidelines; 2012h). In 2013, PCPs are reverting to a four-year planning cycle, maintaining this alignment in order to facilitate greater integration in planning and to avoid duplication of effort across the sector (Victorian Government, 2011b).

The reporting requirements for 2012 included DoH specified deliverables with associated outcomes under the following areas: Partnerships, Integrated Health Promotion, Service Coordination and Integrated Chronic Disease Management (Victorian Government, 2012h; 2012i). PCP planning is also directed by identified priorities, influenced by the Victorian Health and Wellbeing Plan, MPHWP and locally identified issues. Specific projects are developed by each PCP with their partner agencies under the umbrella of these priority areas and associated funding, and it is up to the discernment of a PCP to include climate change impacts within this process (Victorian Government, 2012h; Pers. comm. T. Mitchell (DoH), 2013c).

At the date of writing, the *PCP Draft Abridged Program Logic for 2013-2017* (Version May 2013) did not specifically outline consideration of climate change impacts in its proposed guiding principles, priority conditions and prevention areas, nor in its overall program logic framework (Victorian Government, 2013b)[2].

[2] At the time of writing, the draft document was in the final stages of external consultation, closing the first week of June 2013.

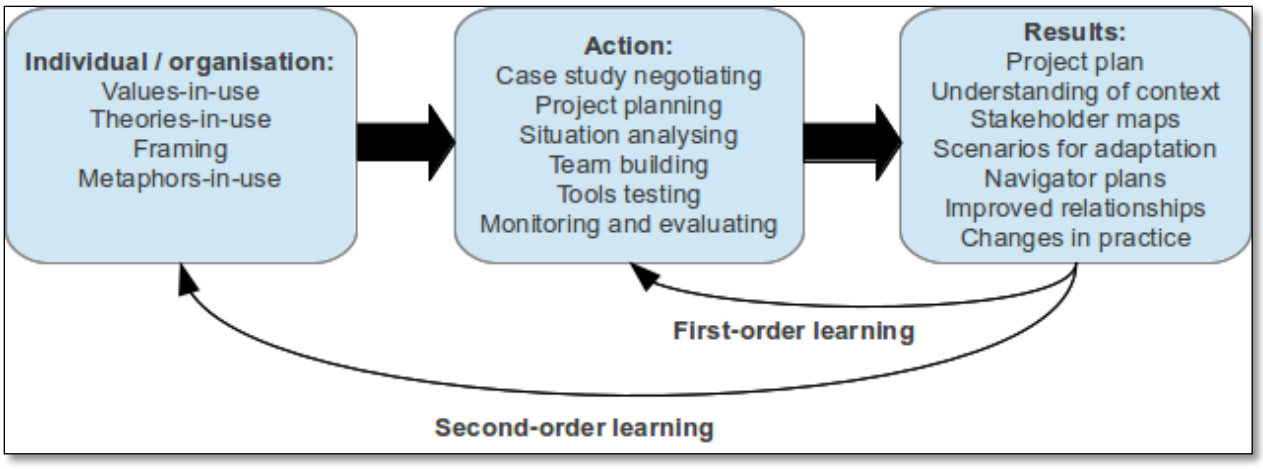
3 Research framework and methodology

3.1 Theoretical framework

The VCCCAR Implementing Adaptation research project is particularly concerned with eliciting information about how organisations in different sectors learn to adapt to climate change. To do this, on a number of theoretical concepts were drawn upon. The concept of social learning is central to the approach taken. Learning approaches are particularly suitable for adaptation planning in a climate changing world, where it is impossible to think of an 'end point' when adaptation will be complete or when a system is 'adapted' (Adger et al., 2005; Berkhout et al., 2006; Collins & Ison, 2009; Fünfgeld & McEvoy, 2011; Wallis et al., 2013). Climate Change Adaptation has many similarities to processes of organisational learning (Berkhout et al., 2006) and the ideas of double and triple loop learning found in the works of Argyris & Schön (1978), Senge (1990) and Schön & Rein (1995). This conception of three orders of learning reflects work from the policy learning literature. In particular, Hall's (1993) dissertation on policy paradigms and social learning, describes the need for three orders of learning.

Adaptation planning is not simply a matter of 'having a plan'. It is a continuous and repeated process of learning, action, and reflection - ongoing planning. Developed from an extensive history of research in this field (Hall 1993), different levels of learning can be identified as outlined in Figure 2: A learning-based model of research and engagement below. First order learning is the adjustment of action in response to the results of an action or basic 'learning by doing'. Second order learning is the adjustment of the principles (e.g. values, rules, theories) on which action is based, as well as adjusting the action itself in response to results.

FIGURE 2: A LEARNING-BASED MODEL OF RESEARCH AND ENGAGEMENT



SOURCE: ADAPTED FROM ISON ET AL. (2009).

The concept of social learning provides a theoretical lens to analyse and understand the learning, changes in practice, and organisational and individual transformations, that may take place when

adaptation planning processes are implemented in a given organisational environment. The challenge for both researchers and practitioners is to apply learning approaches in practice in ways that transform the situation that is being researched. Through this project there were aims to achieve this using a qualitative research approach. Rich data on the needs and capabilities of organisations and individuals are being collected through semi-structured interviews, focus groups and in-depth case study work with a select number of organisations from across the three types of government service providers and funded agencies involved in the project.

3.2 Literature review methodology

Guiding questions for the review

The intent of the review was to gain an overview of the current knowledge and understanding regarding climate change adaptation in the primary health and community welfare sector, against which the empirical research findings will be evaluated.

The approach to the review was deliberately broad in thematic scope, to be able to adequately reflect the cross-cutting nature of climate change adaptation. However, four specific questions guided the review:

- *What evidence exists in the academic and non-academic literature about efforts of the* primary health and community welfare sector *to plan for and respond to climate change impacts?*
- *How is climate change adaptation framed in key sector publications and studies?*
- *To what extent are climate change impacts and adaptation considerations incorporated in planning and decision-making processes in the Australian* primary health and community welfare sector*?*
- *What evidence exists about the adaptive capacity of the sector in Victoria, Australia and elsewhere?*

Review process

It was decided to conduct a combined review for the primary health care and the community services sectors. The decision to combine both reviews was made during the review process, as it became apparent that it would be difficult to differentiate between sources relevant to PCPs and those mainly relevant to CSOs. This is reflective of the fact that the two groups overlap significantly and they appear to share similar challenges with regard to climate change. Many PCP agencies are also CSOs, and many of the public health issues that may be of particular interest to PCPs are relevant to many CSOs. The ultimate goal of both types of organisations is to improve the welfare of individuals and communities. For these reasons, the language of 'primary health and community welfare sector' is henceforth used throughout this report to refer to issues relevant to both CSOs and PCPs. In the review of the institutional context (see Section 2 above), and elsewhere as appropriate, information has been provided that specifically applies to either PCPs or CSOs.

It is important to note that review is predominantly based on findings documented in the peer-reviewed academic literature, although documents published as 'grey literature', in particular government documents, have also been consulted. The review does not include or draw on the views and experiences of project participants (e.g. as communicated to the research team during workshops and interviews conducted as part of the project), except where such sources are marked as 'personal communication' (pers. comm.).

For the literature review, electronic database searches were conducted for the search terms: 'climate change', 'climate change adaptation', 'health', 'primary health care', 'community', 'community services', 'community welfare', using various combinations. The focus was on including peer-reviewed journal articles of the past five years, although some older papers considered important were included. The electronic databases used for this search were:

- IngentaConnect (Ingenta)
- ENVIROnetBASE
- ProQuest Science Journals (ProQuest)
- ScienceDirect (Elsevier)
- SpringerLink
- Web of Science (ISI)
- Wiley Online Library
- ProQuest
- Social Services Abstracts (ProQuest)
- GeoRef (ProQuest)
- GeoRef In Process (ProQuest)

Additional grey literature was included, such as existing organisational publications, literature reviews and other key documents from the primary health and community welfare sector. In selecting these documents, emphasis was placed on the Australian context and on literature pertaining to CSOs and/or PCPs in particular.

For the review of current institutional context, the websites of major websites of Australian government departments associated with the primary health and community welfare sector, at the federal and Victorian state government level, as well as recent publications from peak organisations working in the sector were searched.

3.3 Interview methodology

Sample size and selection

The stakeholder consultation and scoping process for the VCCCAR IA project aimed to give all organisations within each sector an opportunity to participate. For the interview phase of the projects, interview targets were set, as outlined at Table 1: Interview targets per organisation type below.

TABLE 1: INTERVIEW TARGETS PER ORGANISATION TYPE

Organisation type	Organisation target	Individual interview target
CMA	4	15
CSO	12	25
PCP	8	15

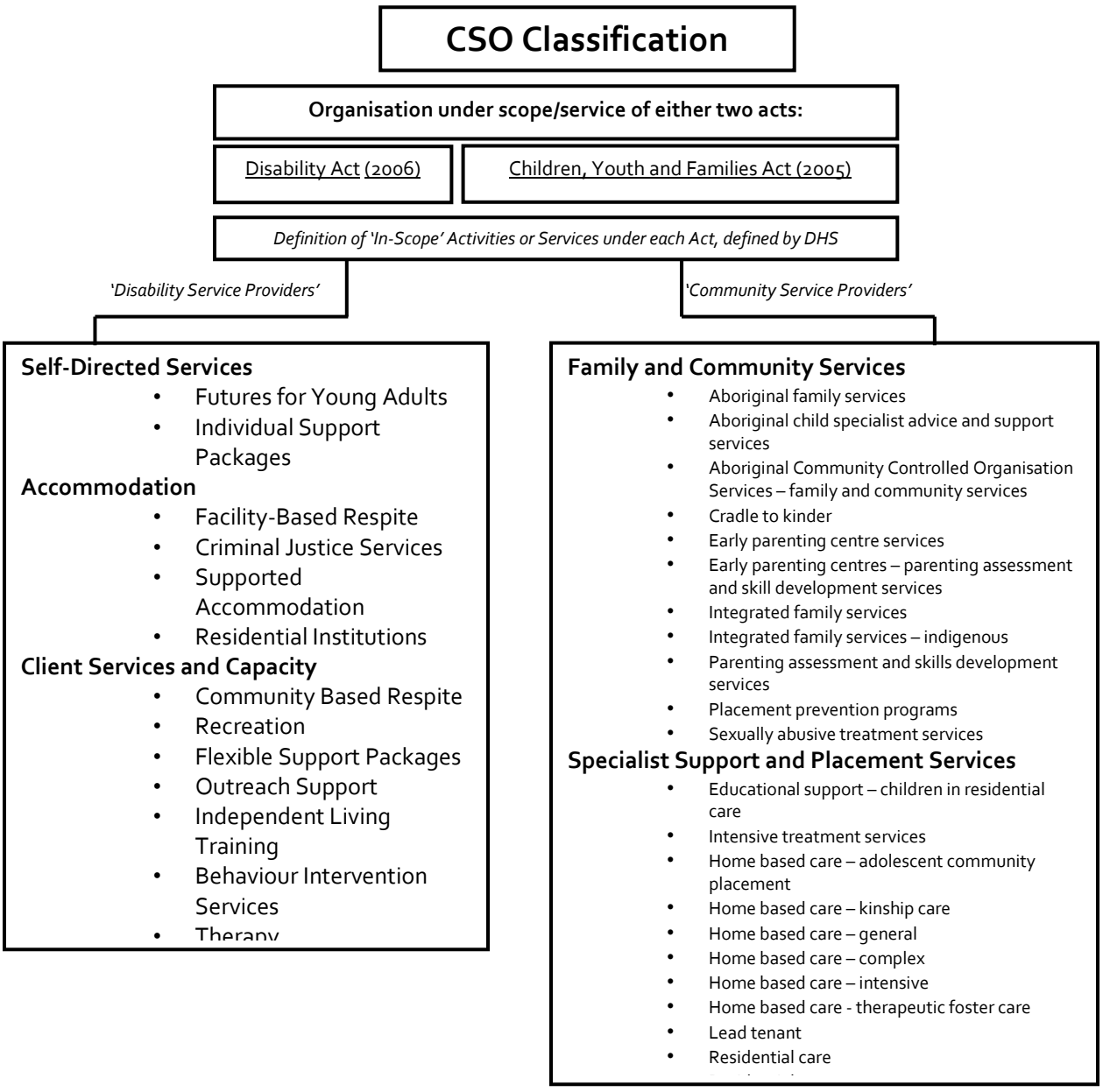
For PCPs, the Department of Health assisted in making the project known among PCP staff. In addition, the research team contacted all PCPs in Victoria by email to inform them of the project, its objectives and deliverables. The first round of phone calls occurred from August to September, 2012 to gauge interest in project participation. Phone calls were made to executive level representatives or their administration support.

Participation in interviews was voluntary, and an opportunistic sampling process was employed. Where PCPs expressed interest in project participation, Participant Information Sheet and project summaries were emailed. A follow-up phone call was made three to five days later to confirm participation and interview dates were scheduled, including clarifying the research ethics procedures requirements of the project. Face to Face interviews were preferred, but in some instances, phone interviews were undertaken due to time constraints and the geographic location of the interviewees.

For CSOs, the sampling process needed to be different and more stratified, due to the large number of CSOs and their immense diversity. Therefore, the first invitation for CSOs to participate in the study was guided by two existing types of classifications: service area criteria and service type criteria. Service area criteria were based on the Australian Local Government Classification System which outlines a methodology for classification of area type and naming category. Categories were simplified to Rural (R), Peri-Urban (PU) and Urban (U), and efforts were made to contact a representative sample from each regional context. Service type classification methodology was based on criteria outlined by the Department of Human Services and the associated legal acts relating to service provision. Although CSOs offer a range of services, they generally fall into two parent categories, as outlined by Figure 3 below: disability service providers and community service providers. First contact endeavoured to reach an equal sample of each type of CSO.

Participation in interviews was voluntary, and an opportunistic sampling process was employed. Where CSOs expressed interest in project participation, Participant Information Sheet and project summaries were emailed. A follow-up phone call was made three to five days later to confirm participation and interview dates were scheduled, including clarifying the research ethics procedures requirements of the project. Face-to-face interviews were preferred, but in some instances, phone interviews were undertaken due to time constraints and the geographic location of the interviewees.

FIGURE 3: CSO CLASSIFICATION METHODOLOGY VIA SERVICE TYPE



Semi-structured interviews

TABLE 2: ACTUAL NUMBERS OF ORGANISATIONS AND INDIVIDUALS INTERVIEWED PER ORGANISATION TYPE

Organisation Type	Organisations interviewed	Individuals interviewed
CMA	6	18
CSO	27	31
PCP	17	23

Between October 2012 and January 2013, a total of 72 interviews were conducted (see Table 2 above). Among PCPs, a total of 23 interviews were conducted covering 17 PCPs. Among CSOs, a total of 31 interviews were conducted covering 27 CSOs. Although this represents less than 3% of CSOs in Victoria, it was possible to recruit a diverse range of organisations for the interviews. However, it is important to bear in mind that the small sample size means that the research findings are not representative of all CSOs across the whole primary health and community welfare sector.

Interviews ranged from half an hour to 2 hours. The interviews were semi-structured, to ensure interviews remained focused on the main research questions and to maximise consistency across interviewers whilst enabling a degree of flexibility and allowing for more in-depth answers where appropriate (see outline in

Appendix 1: Outline used for semi-structured interviews).

All interviews were audio recorded with the consent of the participant for data analysis purposes. Participants were given a broad background to the project and asked to discuss their personal history, training, and organisational context.

Interviews that could not be arranged face to face were undertaken over the phone all and followed a similar structure than face-to-face interviews. All phone interviews were audio recorded with the consent of the participant.

To close each interview, participants were asked if they felt like there was anything they wished to add to the interview or if there was anything missed, to provide opportunity for further open discussion.

Where possible, individual researchers conducting the interviews noted down written reflections immediately after each interview. This involved listing five key messages gleaned from an interview and discussing these with other researchers. These reflections were used as an additional data source for analysis.

Rich picturing activity

Semi-structured interviews were structured around a participatory activity called 'rich picturing' or 'drawing rich pictures'. During this activity, participants were asked to draw a simple picture of their situation within the sector with regard to climate change adaptation.

Participants were provided with butchers paper and 20 colour markers and then asked to draw a picture in that capture the answer to the question: "What is happening in your sector with regard to responding to and planning for climate variability and change?" (See question 2,

Appendix 1: Outline used for semi-structured interviews). Participants were prompted to consider what they perceive as problematic or significant in the situation and instructed to draw themselves in the picture and encouraged to minimise the use of text and labels.

Participants were left alone for ten to fifteen minutes to draw their rich picture without interruption or pressure arising from researchers being present in the room. Participants were then asked to describe what their picture with a series of prompts regarding networks, information support and policy context (see

Appendix 1: Outline used for semi-structured interviews).

Participants were offered to keep the hard copy of their rich picture. All rich pictures were photographed and included in the analysis and imported into NVivo10 (see Data analysis and interpretation).

Spectrum of support activity

A final exercise was utilised to determine what participants perceived to support them in adaptation and what was thought to 'get in the way". Participants were asked to place themselves on a spectrum line (drawn on butchers' paper) from zero to ten, where *zero* signified the statement: "I have no support that I need to make progress on adaptation" and *ten* stood for: "I have all the support I need to make progress on adaptation". A series of questions were asked (see

Appendix 1: Outline used for semi-structured interviews) to determine reasons for where participants placed themselves on the spectrum.

Data analysis and interpretation

All interviews were transcribed using a professional transcription service using time-stamping for ease of analysis. All interviews were de-identified, categorised listed with analysis attributes such as regional context (rural, peri-urban and urban) and level of employment (officer, middle management and executive). The complete de-identified participant register with associated attributes can be found in Appendix 2: De-identified record of respondents.

All interview audio and transcripts were analysed using the *NVivo10* software. Additional data sources, such as organisational strategic plans, annual reports, brochures and associated information were also included in the software for use in analysis. The following individual and organisational attributes were allocated to each interview and other data sources including:

- Interviewer,
- Date of interview,
- Location of interview,
- Organisation type (PCP, CSO, CMA)
- Geographic context of organisation (rural, peri-urban, urban)
- Length of employment at organisation (<1 year, 1-5 years, 5-10 years >10 years),and
- Level of employment (officer, middle management, executive).

These attributes allowed organisation type-specific analysis and consideration of specific aspects of the interview during the analysis.

NVivo data analysis was undertaken using standalone software versions for each researcher. A version control and data coding protocol had to be developed to maintain consistency in approach. A master file with three back-up locations ensured that data was stored securely. Standalone projects were merged with the project master file every fortnight and merge reports retained in each instance for records. All versions of the NVivo project files were password protected.

NVivo relies on users 'coding' research data, i.e. assigning labels about the messages contained to a word, phrase or section of transcribed interview. For this purpose, a coding framework was developed, based on work by David Ballard's *model of the change process for sustainability* (Ballard, 2005).The framework consist of the overarching codes of: *history, awareness, agency, association, action & reflection,* and *architecture*. Under each of these headings, several codes were developed and applied to the interview transcripts. A full coding framework, complete with sub-codes and associated descriptions, is available at Appendix 3. To maintain consistency in coding, the research team undertook two parallel interview coding sessions, with different researchers working on identical

interviews. Coding comparisons were then undertaken using NVivo statistical analysis tools to ascertain the level of variation in coding by individual researchers. Coding comparisons were undertaken at various stages throughout the analysis process in an attempt to maximise coding consistency. Throughout the coding process, researchers noted emergent themes within NVivo.

It is understood that there are many ways in which data analysis could be done for such a diverse and multi-sectoral set of interviews. It was the aim of the research team to investigate a range of themes and allow for key messages to emerge from the data. The following report outlines these key themes, supported by direct quotes from participants.

4 Key themes emerging from the literature

Climate change adaptation is still a relatively young and underdeveloped field of research and policy making. Nevertheless, the impacts of climate change on human health and possible adaptation responses are an area of rapidly increasing academic scholarship. A challenge for adaptation research and policy alike are the pervasiveness and interdependent nature of climate change impacts and adaptation responses, which does not lend itself well to compartmentalised approaches to research and practice. Interdisciplinary and multi-level approaches are required that connect climate change issues with existing societal challenges and policy agendas.

In the following, we discuss findings from a review of literature on the impacts of climate change on human health and the primary health and community welfare sector, including adaptation processes documented in published research and grey literature. The purpose of the review was to gain an overview of the current knowledge and understanding regarding climate change impacts and adaptation in the primary health and community welfare sector, in Australia and internationally. Details of the methodology used for the literature review were explained in section 3.2.

4.1 Introductory observations: research on health, well-being and climate change adaptation

Underpinned by increasing evidence of the causes and consequences of climate change, governments, private sector companies, and non-governmental organisations are increasingly incorporating considerations regarding the social impacts of climate change into policies and planning processes, in particular at sub-national level. The increasing amount of publications on the human health and social impacts of climate change suggests that planning for and responding to climate change has gained significant momentum among primary health care and community welfare organisations in the so-called developed and in the developing world. Much remains to be done, however, to facilitate a transition from primary research, knowledge creation and awareness raising to developing and implementing effective policies that support practical adaptation in the primary health and community welfare sector.

The World Health Organization (WHO) emphasised the 'importance of placing the research on climate change in the context of improving global health and health equity rather than having the climate change research agenda as a stand-alone issue' (Costello et al., 2009: p.442). To this effect, concerns regarding the health and well-being impacts of climate change need to be understood in the context of existing, decade-long learning and policy formation in research and policy fields as diverse as epidemiology, social psychology, emergency management, social justice and community development. As will be shown below, the benefits of such contextualised research on climate change adaptation are manifold and well reflected in the literature reviewed for this report. Working on climate change adaptation primarily through a disciplinary context, however, runs the risk of fragmentation, where

research efforts are duplicated across sectors and policy responses evolve in separation from each other along disciplinary and departmental boundaries.

In the following sections, we present and discuss issues and themes related to climate change adaptation in the primary health and community welfare sector that stand out from the academic and non-academic literature.

4.2 Impacts of climate change on human health and well-being

It is now well-established in the literature that climate change will lead to significant, yet geographically and socially differentiated, impacts on human health and well-being. These impacts are already affecting populations directly or indirectly, and they can be expected to become more severe in many areas. As we improve our understanding of its health and well-being impacts, climate change is emerging as a major social challenge of our time. The primary health and community welfare sector will experience the impacts of climate change in direct and indirect ways.

Linkages between climate change and human health and well-being

Climate change is now recognised as a severe contemporary issue affecting human health and well-being across the globe. According to an estimate by the World Health Organization, over 150,000 people die annually due to the effects of anthropogenic climate change (Patz et al., 2005). Climate change is projected to further increase mortality directly and indirectly, by leading to increased malnutrition, cardio-respiratory diseases, heat stress, diarrhoeal diseases and changes in the distribution of infectious disease pathogens (Costello et al., 2009; Saniotis & Bi, 2009). In this context, it is not surprising that some scholars consider climate change 'the biggest global health threat of the 21st century' (Costello et al., 2009: p. 1693).

Costello et al. (2009), in a landmark review on the health effects of climate change, suggest there are six broad linkages between climate change and health, which continue to resonate with the wider academic literature on the topic. Climate change will affect human health:

(1) By directly ***changing global patterns of disease and mortality***, including the spread and transmission of vector-borne diseases (Patz et al., 2000; Patz et al., 2005; Ebi et al., 2006; Samet, 2010);

(2) By exacerbating existing ***food insecurity*** (Fritze et al., 2008; Olaris & NYCH, 2008; Rowe et al., 2008; McMichael & Lindgren, 2011);

(3) By making the provision of ***clean water, good sanitation and drainage*** more difficult due to changing rainfall and temperature (Patz et al., 2000; Ezzati et al. 2004; Lim et al., 2004; Keim, 2008);

(4) By increasing existing structural vulnerabilities resulting from ***rapid urbanisation*** (Dodman & Satterthwaite, 2008; Sanchez-Rodriguez, 2009; Satterthwaite, 2009; Hunt & Watkiss, 2010);

(5) By compounding the short and long-term health effects of ***extreme weather events***, which are expected to become more frequent and more intense (McMichael & Blashki, 2007; Carthey et al., 2009; Bajayo, 2012; Linnenluecke & Griffiths, 2012);

(6) By interfacing with ***population growth and migration***, leading to increased competition for scarce resources (Lim et al., 2004; Fritze et al., 2008; HREOC, 2008; Bowen & Friel, 2012).

Many overlaps and causal links exist between these six main linkages; however, Costello et al. (2009) recommend that each category be considered independently, to be able to identify options for adaptation and to allow for assessing the risks of inaction. Some of these links, such as increasing vulnerability due to rapid urbanisation, have been identified most clearly in research conducted in developing countries. They can be expected to have indirect flow-on effects on globalised economic and social systems, e.g. by way of changing food prices, increased in-migration to countries like Australia, and disruptions to supply chains. These indirect socio-economic effects, in turn, will have adverse consequences for the health and well-being of individual and communities even though they may be far removed from the location of a specific climate change impacts.

Trying to fathom the potential direct and indirect effects of climate change on the primary health and community welfare sector is an enormous task. As part of improving our understanding of these effects, it is important to recognise that the severity of expected impacts will not be determined by extreme weather or other natural events following from global climate change alone. Instead, the magnitude and frequency of climate change related impacts will be a result of the interaction between human systems, natural systems, and climate change trends and events (N. W. Adger & Kelly, 1999; Doherty & Clayton, 2011). In the context of community services and primary health care, it is important to acknowledge that climate change is not only a physical phenomenon; it is deeply social, with regard to its individual and societal impacts, its public perception, and the range of possible human responses (Adger, 2003; Pelling et al., 2007; Hulme, 2009; Reser & Swim, 2011; Wolf, 2011).

Climate change impacts and health and well-being implications for Victoria

South-eastern Australia is experiencing a range of changes to its natural and human systems, induced by anthropogenic climate change. More frequent and prolonged drought, changing rainfall patterns, sea-level rise, and more intense and more frequent extreme weather events can be expected for the remainder of the 21st century (Climate Commission, 2012; Commissioner for Environmental Sustainability, 2012). These provide the biophysical context for better understanding the likely health and well-being impacts of climate change.

In line with international scientific consensus that climate change is unequivocal (IPCC, 2007), a range of climate change impacts can be expected to affect Victoria, its ecosystems, and its people in the future, posing significant risks to the state (Climate Commission, 2012). Some of these impacts will result from gradual, slow-onset climate change trends, for example coastal inundation from sea-level rise and water scarcity due to a long-term drying trend. With global sea level rise tracking near highest projected levels, coastal communities in Victoria will experience more frequent inundation, stronger storm surge events, coastal erosion and increased threats to low-lying housing and properties.

Other impacts will occur due to an increase in short-lived extreme weather events, such as heat waves, bushfires, hailstorms and heavy rainfall. Annual average daily mean temperatures in Australia have increased by 0.9°C since 1910 and are projected to continue to increase by 1.0 to 5.0°C by 2070 under

future emission scenarios considered by the Intergovernmental Panel on Climate Change (Bureau of Meteorology & CSIRO, 2012). Victoria's average number of hot days above 35°C has already increased, and is projected to increase further, from nine in 1990 to 15 to 26 days in 2070, while the number of cool days and cold nights will decrease (Victorian Government, 2012j). This will lead to more frequent heatwaves and days of very high or extreme fire danger. The increase in temperature extremes is paralleled by a long-term drying trend over southern and eastern Australia, leading to more frequent droughts in Victoria and elsewhere (Bureau of Meteorology & CSIRO, 2012).

In recent history, Victoria has experienced both a 14-year drought and significant water scarcity that culminated in the 2009 heatwave and Black Saturday bushfire disasters, followed by extremely wet years that led to severe flooding and damages to crops, properties and infrastructure. These events 'provide Victorians with a window into [a] future' (Climate Commission, 2012) where it can be expected that extreme weather events will increase in frequency and in intensity throughout the 21st century (IPCC, 2012). The Climate Commission considers increasing temperatures and increasing frequency and intensity of extreme weather events as the most serious climate change related risks to human health (Hughes & McMichael, 2011).

Physical health and well-being impacts

Climate change can have a range of direct or indirect impacts on physical health. These can affect the staff, partners and clients of community service and primary health care organisations during and after acute climate change events, or as a consequence of gradual changes to the climate.

Mounting evidence suggests that climatic changes already affect human health (Patz et al., 2005). An increasing body of scholarly research has identified the most likely and most significant physical health impacts of climate change (McMichael et al., 2003; Frumkin & McMichael, 2008; Weaver et al., 2010; Blashki et al., 2011; Hughes & McMichael, 2011).

For the Australian context direct physical effects can be summarised as (collated from the above sources):

- Injury and death from extreme weather events such as floods, bushfires, and storms;
- Physical impacts of increased temperatures and heat waves, such as heat exhaustion and heat stress;
- Spread of vector-borne diseases;
- Impacts on air quality and respiratory illness;
- Changes in food and water quality and availability due to changing rainfall patterns.

The direct physical health impacts above can lead to, or occur concurrently, with indirect impacts on physical health, such as:

- Dietary changes due to increases in fresh food prices, resulting in reduced nutrition

- Exacerbation of asthma and allergic conditions from regional increases in pollens and spores,
- Displacement due to sea-level rise and drying trends, and the physical health risks linked to being an environmental refugee
- Increased pressure on health systems, community services and emergency responses

(Weaver et al., 2010; Blashki et al., 2011; Hughes & McMichael, 2011)

These flow-on effects are much harder to predict in timing and extent, because they are compounded by a wide range of non-climatic factors, such as the existing vulnerability of individuals and communities (Hughes & McMichael, 2011).

In the recent literature, there appears to be a bias towards the increase in frequency and intensity of heatwaves and the various flow-on effects that changes in temperature and precipitation will have on seasonality and the prevalence of infectious diseases (Costello et al., 2009). In addition, and particularly relevant to Australia, the literature suggests that there are geographic hotspots where risks to health will be particularly significant with a changing climate, as changes in existing patterns of the spreading of infectious diseases vary by geography, regional climate and topography (Costello et al., 2009; Walker et al., 2011). Further research is required to investigate the extent to which the indirect and direct effects of climate change will be experienced across different geographical regions in Australia, to enable individuals and communities to better understand climate change risks at a local level (CAHA, 2012).

Mental health and well-being impacts

Although more difficult to attribute to climate change, the mental health impacts of climate change are increasingly becoming understood, suggesting mental health impacts should be considered an essential part of climate change adaptation planning in the primary health and community welfare sector.

In the published literature, the likely mental health effects of climate change are not as well established as the physical health impacts discussed above (Fritze et al., 2008). This may be attributed to many mental health effects being only indirectly linked to climate change (Horton, 2007), to the often delayed nature of impact (Berry et al., 2010), and to comparatively limited and often inadequate resources made available for mental health services and research in general (Jorm et al., 2002; Horton, 2007; Spickett et al., 2008; Berry et al., 2010).

The physical impacts of climate change, such as Increasing frequency, severity and duration of adverse weather effects, are expected to affect mental health in at least four major ways:

(1) Through direct mental effects as a consequence of more severe natural disasters. These frequently lead to immediate serious mental health problems, to chronic and severe mental health problems in their aftermath, and to adverse effects to mental health systems (Anderson & Anderson, 1998; Norris et al., 2002; Norris, Friedman, & Watson, 2002; Berry et al., 2008; Fritze et al., 2008).

(2) By increasing the risk of physical injury, which can result in mental health problems (Berry et al., 2010).

(3) By threatening established natural and social environments and the social, economic and environmental determinants that form the basis of people's livelihoods and physical and mental well-being (Fritze et al., 2008; Berry et al., 2010).

(4) As a global environmental change phenomenon, by causing increased levels of psychological stress about the future (Fritze et al., 2008; Costello et al., 2009; Doherty & Clayton, 2011).

Fritze et al. (2008) report that anecdotally groups that appear more at risk to the impact of climate on mental health and well-being are those with existing depression or anxiety disorders, those working in the field of climate change itself, and children and adolescents. The link between mental health problems and the short-term effects (e.g. post-traumatic stress disorder) at the onset or right in the aftermath of acute extreme weather events is well established, e.g. the mental health effects of earthquakes (Berry et al., 2010; Salcioglu et al., 2007). Norris et al. (2002), in a review on the mental health effects of disasters, describe the risk factors that lead to poor mental health outcomes following a disaster (Table 3). Their distinction of four different categories of risk factors emphasises the context-specific nature of mental health impacts in the aftermath of disasters, all of which point to intervention strategies to mitigate individual-level risks.

TABLE 3: INDIVIDUAL-LEVEL RISK FACTORS FOR POOR MENTAL HEALTH OUTCOMES

Category	Risk Factor
Trauma and stress	• Severe exposure to the disaster, especially injury, threat to life, and extreme loss. • Living in the context of a neighbourhood or community that is highly disrupted or traumatised. • High secondary stress, regardless of whether it is of an acute or chronic nature.
Survivor characteristics	• Female gender. • If an adult survivor, age in the middle years 40-60. • Little previous experience relevant to coping with a disaster. • Membership in an ethnic minority group. • Poverty or low socio-economic status. • Pre disaster psychiatric history.
Family context	• If an adult survivor, the presence of children in the home and, if female, the presence of a spouse. • If a child survivor, the presence of parental distress. • The presence of a family member who is significantly distressed. • Interpersonal conflict or lack of a supportive atmosphere in the home.
Resource context	• Lacking or losing beliefs in one's ability to cope and control outcomes. • Possessing few, weak, or deteriorating social resources.

SOURCE: NORRIS ET AL. 2002: 247.

Not much evidence exists on the long-term mental health effects of disastrous climatic events (Berry et al., 2010). In the UK, a number of studies have assessed the psychosocial impacts of flooding (Tapsell & Tunstall, 2008; Carroll et al., 2009). Berry et al. (2008) conducted a review of the mental health impacts

of climate change in rural and remote Australia, which found that further research was necessary to better understand the mental health and well-being impacts of drought, long-term drying and other climate change impacts. Fritze et al. (2008) note that recruitment and retention of mental health professionals is particularly difficult in rural Australia; a situation that will exacerbate any potential impacts of climate change on mental health in rural areas.

To date, little quantitative data is available on the long-term mental health effects of gradual, slow-onset climate change impacts, such as droughts (Berry et al., 2010). However, Berry et al. (2010) contend that slow-onset (gradual or sub-acute) climate change impacts that lead to the loss of lives, properties, dislocation, and isolation, may have similar long-term mental health effects to those caused by sudden, acute catastrophic events. Table 4 below provides an overview of known direct and indirect mental health effects associated with acute and sub-acute weather events.

TABLE 4: EFFECTS ON MENTAL HEALTH FOR ACUTE AND SUB-ACUTE WEATHER EVENTS

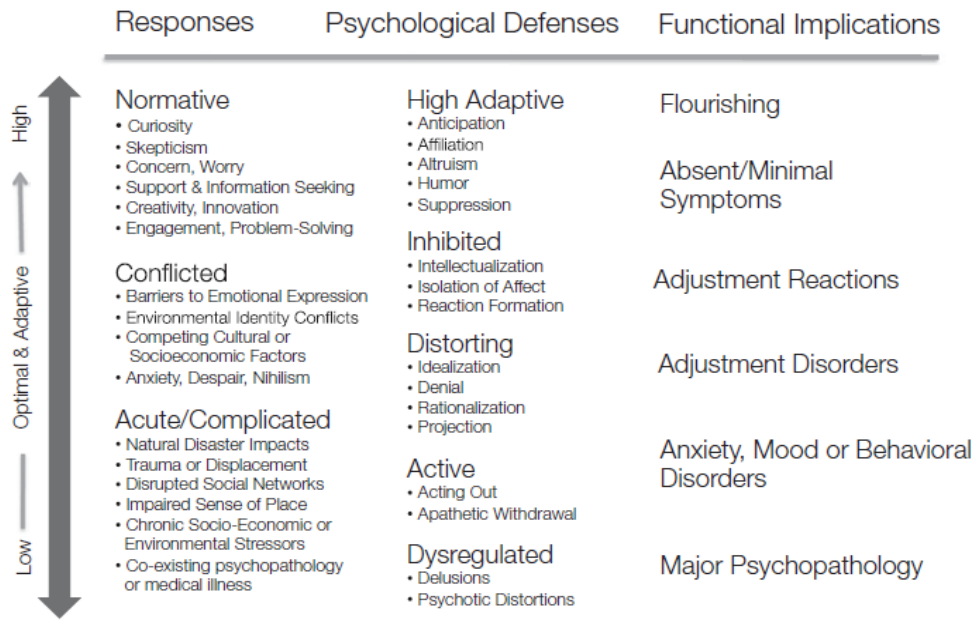
	Acute weather event (e.g. increased frequency of cyclones)	Sub-acute weather event (e.g. more extremely hot days, droughts)
Direct effects on mental health	More frequent exposure to physical danger due to storms or floods; elevated rates of acute anxiety disorders	More frequent exposure to chronic stress, e.g. from long periods of extremes of heat or lack of (clean) water; elevated rates of violence and aggression
Indirect effects on mental health	More frequent and/or severe damage to homes and physical infrastructure, including community buildings (halls, churches, schools); physical injury to self or significant others; elevated rates of anxiety and mood disorders	More frequent and/or severe physical health impacts and damage to livelihoods and soft social infrastructure (disruption of networks, lack of time to socialize); elevated rates of chronic mood disorders and suicide ideation and attempts

SOURCE: BERRY ET AL., 2010: P.126.

Among the most severe mental health impacts of climate change mentioned in Table 4 are increased levels of aggression, criminal behaviour and social unrest (Cohn et al., 2004; Parkinson et al., 2011; SEHCP et al., 2012), and suicide associated with extreme heat events and other natural disasters (Maes et al., 1994; Page et al., 2007). It is important to note that the evidence for the linkages between climate change impacts and these severe mental health impacts remains contested. In their early studies, Anderson and Anderson (1998) noted a link between hot temperatures and consistent increases in aggression, inferring that temperature as an additional 'stressor' magnified an existing 'stressful' situation. During heatwaves in Australia, increased hospital admissions for mental and behavioural disorders have indeed been reported (Hansen et al., 2008), but doubts remain about the causal links between climate change and violence. Until further research on this topic is available, it seems most appropriate to acknowledge the link between climate change and violence as one that is 'complex and cannot be reduced to simple relationships between changes in environmental variables and people being violent' (SEHCP et al., 2012: p.1).

To better understand the breadth of the potential mental health impacts of climate change, Doherty and Clayton (2011: p.273) propose a provisional diagnostic framework for categorising psychological responses to climate change impacts (Figure 4). The framework categorises known psychological defence mechanisms for dealing with climate change impacts as well as their functional implications. Such a framework can assist primary health and community service organisations in framing and further exploring potential psychological responses of individual stakeholders or groups affected by climate change impacts.

FIGURE 4: PROVISIONAL FRAMEWORK FOR PSYCHOLOGICAL RESPONSES TO CLIMATE CHANGE



SOURCE: DOHERTY & CLAYTON, 2011: P.273

Community-level impacts

Beyond individual-level physical and mental health and well-being impacts, climate change and the long-term trends and sudden extreme events will lead to disruptions and sometimes irrevocable changes to the way communities function. This can have significant repercussions for individual and community identity, having a sense of place, and, subsequently, also to health and well-being (Tapsell & Tunstall, 2008; Carroll et al., 2009).Such changes occurring at the whole-of-community level can have important implications for the services provided by the primary health and community welfare sector.

Klinenberg (2002) comments that there is a relationship between the degradation of neighbourhood physical environments and social dynamics, which led to higher numbers of heat-related deaths due to isolation of residents from crucial networks of support. In a similar vein, Alston and Kent's (2004) research highlights that during times of drought in rural Australia, isolation is common due to increased workload and income strain resulting in families withdrawing from the community. This in turn is reported to lead to associated physical and mental issues.

Community-level impacts do not only occur through direct health and well-being effects but also through the impacts of extreme weather events on health care and community service systems, i.e. the institutions, infrastructure and services intended to support human health (Alston & Kent, 2004; Few, 2007). Climate-related impacts, such as floods and storms, cause significant damage to infrastructure and disrupt health and other essential services, leading to health systems being unable to provide services when they is most needed. Thus, the impacts of climate change events on the health care system can amount to a 'double jeopardy' for people affected by climate-induced disasters who are relying on services and infrastructure for meeting their medical needs (Few, 2007: p.283).

Not only those that need urgent medical attention due to the climate change impact itself may suffer from the breakdown in services; likewise, people with routine or chronic needs may find it impossible to access standard health care services during such times. Floods, droughts can disrupt normal water supplies, vector control and waste disposal as well as other services related to environmental health (Wisner & Adams, 2002; Alston & Kent, 2004). The severity of the social and health impacts of flood disasters can be related to the physical impacts of these events on infrastructure (Tapsell & Tunstall, 2008; Carroll et al., 2009). Carroll et al. (2009), in a qualitative study on the health and social impacts of flooding in Carlisle, UK, conclude that 'disasters do not merely make people become unsettled, they attack and break the bonds of continuity, familiarity and attachment to the home' (ibid: p.545).

As in the case of the recent bushfires and floods in Victoria, impacts may be extremely localised and varied across geographic areas, severely affecting one community or parts thereof, while sparing another (Tapsell & Tunstall, 2008). In addition, not all communities will be equally well-prepared for climate change events or able to respond in the same way. An important question that primary health and community service organisations therefore need to ask themselves is whether the current primary health care system is 'taking into account the geographic variability in the effects of climate change and the different adaptive capacities of the communities' that it serves? (Walker, 2009: p.2).

For decades, the primary health and community welfare sector has dealt with underlying social, economic and environmental issues, such as poverty, inequity, ignorance, complacency, counterproductive behaviour, conflict, infection and environmental stress. Rapid anthropogenic climate change in the twenty-first century adds yet another urgent dimension to these independently challenging issues (Smith, 2008). In addition to disruptive impacts following extreme weather events, climate change can be expected to gradually lead to a range of structural changes to the way society operates. The Victorian Council of Social Services expects that climate change will lead to structural social change, such as increased prices for essential goods and services such as food, utilities and transport, and changes in the availability and distribution of employment (VCOSS, 2007).

4.3 Climate justice

The individual and community level impacts of climate change are likely to manifest unequally across society, in geographic and social terms. Climate change induced events will affect some geographic areas more than others, and people with existing individual, social or economic challenges are likely to experience the adverse effects of climate change more strongly than others. Community service and primary health

care organisations working at the forefront of adaptation are in a good position to appraise the differentiated climate change impacts, identify those most in need, and deliver just and equitable support services.

Vulnerable individuals and groups

The academic literature widely acknowledges that climate change is likely to exacerbate existing inequalities and disproportionately affect vulnerable groups, such as the elderly, young children, those with existing medical conditions, people with disabilities, the socially isolated, and low-income and minority groups (Harlan et al., 2006; Edwards & Wiseman, 2009; Stough et al., 2010; Blashki et al., 2011). In addition, some groups may be more at risk from suffering the mental health effects of climate change than others, e.g. individuals with existing depression or anxiety disorders, and children and adolescents(Fritze et al., 2008; Berry et al., 2010). There is growing evidence that climate change impacts are also gendered, which calls for critically examining differentiated physical and mental health impacts for women and men, and for incorporating gender considerations into adaptation planning and implementation processes (Anderson, 2009; Nelson et al., 2002).

Indigenous peoples are increasingly reported to be among the population groups particularly vulnerable to climate change (Thomas & Twyman, 2005; Ford, 2012). This is the case because, in many cases, indigenous groups experience different degrees and types of exposure and sensitivity to climate change impacts than non-indigenous groups, due to their culturally and socio-economically specific relationship with the land, the sea and natural resources (Ford, 2012). In addition, many indigenous groups are already socially and economically disadvantaged, for example with regard to access to health care, education, housing and employment. These underlying vulnerabilities can be exacerbated by climate change. Indigenous groups living in areas of high sensitivity to climate change and those whose livelihoods depend on natural resources may be particularly exposed to additional stress (Thomas & Twyman, 2005; Ford, 2012).

While climate change is likely to increase existing challenges for groups of society already vulnerable to socio-economic stress, the exposure and sensitivity to climate change impacts differs significantly within and between groups, as does their capacity to adapt. For example, some indigenous groups considered particularly vulnerable to climate change impacts may be able to tap into traditional knowledge of changing landscapes, their ability to use natural resources efficiently, and their resilient social networks to increase their adaptive capacity (Ford, 2012).

Distributional justice

The observations made above regarding the effects of climate change on vulnerable groups raise some critical questions regarding the distributional justice of climate change (Barnett, 2009). Distributional justice in this context refers to acknowledging that historical and contemporary processes unrelated to climate change have rendered some people more vulnerable than others, who may have benefited from the same processes. On a global scale, distributional *injustice* is evident because countries responsible for most anthropogenic climate change, in most if not all cases, have much higher capacity

to adapt to climate change impacts than the majority of countries and people located in the geographic areas most affected by climate change (ibid.) .

On a local scale, questions of distributional justice also arise in relation to adaptation itself. For example, in the absence of adaptation policies that are informed by concerns about justice, some individuals and groups will inevitably be better able to adapt to climate change impacts than others. If this situation is not alleviated by adaptation policies and support interventions aiming at just and equitable adaptation outcomes, it seems most likely that climate change will render 'the poor [...] poorer both absolutely and relative to the wealthy' (Barnett, 2009: p.135). Smith (2008) summarises the potentially drastic global social justice distortions that climate change is likely to exacerbate as follows:

> *'The rich will find their world to be more expensive, inconvenient, uncomfortable, disrupted, and colourless – in general, more unpleasant and unpredictable, perhaps greatly so. The poor will die.'*
>
> (Smith, 2008: p.1)

Just adaptation

To develop just adaptation measures in the primary health and community welfare sector, it is a prerequisite to understand and consider the geographically, socially and culturally unequal distribution of climate change impacts, and to take existing social vulnerabilities into account (Adger & Kelly, 1999; Adger, 2000; Adger et al., 2005). Many scholars argue that adaptation policy needs to ensure that any adaptation initiative reduces, and doesn't worsen, underlying social vulnerability. For the primary health and community service sector, it is of particular importance to ensure that climate change impacts and all adaptation responses are evaluated through the lenses of social equity and social justice – a notion that is increasingly referred to as 'climate justice' (Barnett, 2009; Fritze & Wiseman, 2009; J. Moss, 2009).

Seen from this purposive perspective of reducing existing vulnerabilities and inequitable societal structures, climate change adaptation offers real opportunities for vulnerable populations to strengthen their livelihoods and become more resilient in the face of climate change and other stressors. A critical ingredient for adaptation then is that vulnerable populations are actively supported in developing their capacity to adapt to changing natural and social environments. To successfully facilitate such processes of positive change, it is vital that questions of empowerment and social inclusion are addressed as central concerns in adaptation policy formulation (Stanley, 2010; Doherty & Clayton, 2011).

In addition to questions about the distribution of impacts across geographical areas and socio-economic groups, many scholars point out that climate change also has significant and complex challenges regarding intergenerational justice (Fritze & Wiseman, 2009; Quiggin, 2009).If organisations are to genuinely consider the climate justice implications of their work, it is important not to separate climate change adaptation efforts from those made for mitigation, i.e. reducing greenhouse gas

emissions. Intergenerational climate justice means making efforts now to reducing future climate change, since 'the greater the impacts the more need for mitigation' (Burton et al., 2002: p.147).

4.4 Using climate change information for adaptation

Increasing evidence about the health and well-being impacts of climate change can inform adaptation planning at an organisational level in the primary health and community welfare sector. To enable organisations to move from increased awareness of climate change impacts towards taking effective adaptation action, further research and policy development is required.

Using climate change information to build capacity

The need to increase awareness that adaptation responses are imperative to the primary health and community welfare sector is evident from voices within the sector (e.g. Hess et al., 2012). Climate change is expected to pose threats outside the existing understanding and coping range of the primary health and community welfare sector (ibid.).

The literature referenced in earlier sections of this report suggests that, increasingly, specific information on the health impacts of climate change is becoming available, although this information is mainly focused on global or national scales (Ezzati et al., 2004; McMichael et al., 2004; Thomas & Capon, 2011; Bowen & Friel, 2012). At the level of primary health and community welfare organisations, access to and the use of health-related information on climate change adaptation appears to remain limited (Patrick & Smith, 2011). The issue of accessibility of useful information highlights capacity gaps in these organisations, which appear unable to locate or process the increasing amount of climate change related information. In Australia, increasing the capacity of the primary health and community welfare sector for climate change adaption has only recently been given some attention.

The capacity of the primary health and community welfare sector to respond to the short and longer term impacts of climate change depends on a vast range of factors, including an appropriately skilled workforce and the extent to which services are linked and integrated with other relevant services and organisations (Horton, 2007; Thornicroft, 2007; Spickett et al., 2008). An effective sector-wide response to climate change impacts requires institutional learning not only within frontline organisations but at multiple levels, to enable the gradual adoption of adaptive management practices throughout the sector (Hess et al., 2012).

Weaver et al. (2010: p.442) identify a number of suitable adaptation measures within the primary health and community welfare sector, including strengthening 'the current monitoring and surveillance programs and to facilitate the ready exchange of information between jurisdictions'. Such commentary supports the view that not a lack of information regarding climate change health impacts is the main problem, but rather a lack of learning and sharing across sectors and departments (Fritze et al., 2008; Weaver et al., 2010). Adaptation experiences from other sectors also point out that better understanding of scientific information does not necessarily lead to successful adaptation, and that lack of agreement on what constitutes best practice hinders effective formulation of climate change adaptation policies (e.g.Ison et al., 2011).

Conducting climate change assessments

Assessments of the potential health and social impacts of climate change are vital to inform the development of adaptation options in the primary health and community welfare sector (Ebi et al., 2006). As in other sectors, the health and climate change literature suggests there is a strong desire to quantify the risks posed under different climate change scenarios on those considered most vulnerable, in order to help individuals, organisations and communities understand how best to build resilience and communicate relevant information (Costello et al., 2009). This view is echoed by Fritze et al. (2009) who state that the development of effective adaptation responses hinges on aiding citizens and communities to develop an informed understanding of the impacts of climate change. Brown et al. (2011) note that due to the vast reach of impact across a range of decision-makers and stakeholders, a structural and systemic approach is required towards identifying, evaluating and managing the health impacts of climate change and existing interactions (Brown et al., 2011). Government can provide structural frameworks for the assessments of the health impacts of climate change in various institutional contexts.

Climate change assessments can serve scientific and policy objectives (Füssel, 2008). They can provide information on the impacts and on adaptation requirements, to guide policy processes. According to Ebi et al. (2006), such assessments must make the issue and associated potential impacts explicit to policy makers, and they should help decision makers in selecting adaptation interventions aimed to reduce negative impacts. In conducting climate change assessments, policy makers and practitioners must be able to understand the multiple sources of uncertainty in estimates of potential future impacts, from uncertainties associated with climate projections to those inherent in climate-health models (Ebi et al., 2006). Explicitly acknowledging and estimating uncertainty and recognising that the details of future climate change impacts will never be completely known can provide a useful and realistic basis for policy making processes, rather than letting uncertainty inhibit action (Moss et al., 2000).

Fostering adaptive thinking through improved communication

Frumkin et al. (2008) comment that the unprecedented scale and level of complexity that climate change presents to the primary health and community welfare sector calls for a 'renaissance' across the sector. It necessitates that health professionals develop entirely new ways of 'adaptive thinking', communicating and acting. For example, adaptation requires addressing longer time frames than have ever been considered in the health sciences and formal health sector. Adaptation, Frumkin et al. (2008) argue, equals a complete change of paradigm for the health sector as a whole.

Many authors emphasise the important role that communication plays in developing adaptive capacity in the primary health and community welfare sector. Bajayo (2012) acknowledges information and communication as one of the four most significant sets of networked resources required to promote community resilience. Others regard communication as the single most important issue in this context (Longstaff, 2005; Pfefferbaum et al.,2005; Longstaff & Yang, 2008). One particular concern is that if messages regarding climate change impacts and adaptation are framed in too extreme or too radical ways, people will perceive the situation as hopeless and do nothing (ESRC, 2009). The Climate Change

Communication Advisory Group (2010) suggests that physical scientists and social scientists should work together to communicate climate change science in a way that gives people agency.

From a public health perspective, the emerging consensus seems to be that effective communication requires messages that motivate 'constructive engagement and support wise policy choices, rather than engendering indifference, fear, or despair' (Frumkin & McMichael, 2008; p.407. The climate change debate needs to be made more accessible to a wider audience and engage more directly with people's anxieties, to assist with identifying options for a more positive future that considers overall societal wellbeing (CCCAG, 2010). Communication of easily accessible, up-to-date information on the health risks associated with climate change as well as communication on the associated prevention strategies are increasingly suggested as basic functions of public health systems (Ezzati et al., 2004; McMichael et al., 2004; Ebi et al., 2006; Kovats et al., 2006; Frumkin et al., 2008).

Building an evidence base on effective adaptation

Although information on climate change health impacts is increasingly available, the literature strongly suggest that there is a need for up-to-date, accessible information regarding local climate impacts, scenarios and tipping points, and for increasing our understanding of the mechanisms for shared learning on successful local and regional level adaptation actions (Alston & Kent, 2004; Olaris & NYCH, 2008; Rowe et al., 2008; Rowe, 2008; Edwards & Wiseman, 2009; Patrick & Capetola, 2011; CAHA, 2012). Knowledge gaps seem particularly apparent with regard to individual mental health impacts, the indirect social impacts of climate change, and the health and well-being effects of slow-onset, sub-acute climate change impacts such as drought, drying and sea-level rise (Edwards & Wiseman, 2009).

With regard to the mental health impacts of climate change, Doherty and Clayton (2011) propose a research agenda for further investigation, addressing the following questions:

- How is the response to environmental problems that result from climate change similar to the response to natural and technological disasters?
- What are the interrelationships between individual and personality variables and psychological processes, including coping and defence mechanisms, psychopathology, socioeconomic vulnerability, group norms, and media and cultural messages regarding climate change?
- What are the most effective therapeutic interventions targeting individual and community health impacts of climate change? In particular, are there differential reactions to the interventions among members of different racial, ethnic, and gender groups and communities?
- What is the effect of environmental disasters on sense of place and place attachment?
- How are different cultures likely to be affected by climate change?
- What are the impacts of climate change and the associated scarcity of natural resources on intergroup relations?

- How can educational interventions promote positive responses such as empowerment, involvement, and efficacy in mitigating and adapting to the psychological impacts of climate change?

(Adapted from: Doherty & Clayton, 2011: p.273)

The above list exemplifies some of the complex evidence that remains insufficient in the context of mental health and climate change adaptation. It provides an example of the type of more specific information that will be necessary for designing convincing policies and guiding less well-resourced organisations in effective adaptation interventions. As Saniotis and Bi (2009: p.614) pointed out, organisations are going to be the 'primary socio-economic units in which public health adaptation will take place', and for organisations to be able to take action on adaptation, practical and specific information on adaptation is required that can readily be interpreted and implemented within a given local social and institutional context (Füssel, 2008).

Examples of such guidance are sector specific resources that inform local adaptive planning initiatives, including methodologies for engaging individuals, communities and organisations in developing well-informed adaptation responses and strategies. In addition, detailed case studies can provide useful reference for organisations starting out on adaptation. Case studies on primary health and community welfare sector responses to climate change from developed countries are still relatively scarce (notable exceptions are (Rowe et al., 2008; Patrick & Capetola, 2011). Building an evidence base on adaptation action using case studies would need to include a translation of what climate change means for communities and, importantly, what practical actions can be taken to reduce widespread pessimism (Fritze et al., 2008).

Effective adaptation decision-making

Even if climate change information and communication were improved dramatically, adaptation cannot take place without individuals, organisations and communities making difficult choices. To move from understanding and evaluating climate change health impacts to adaptation action, decision-makers need to take a plethora of considerations into account. Füssel (2008) lists ten key characteristics of the decision-making problem experienced in planning adaptation for the health risks of climate change, including (summarised):

- Complexity and uncertainty of climate change itself;
- Diverse and causal relationship between climate change and health (direct and indirect impacts);
- Complexity of this relationship including consideration on non-climatic factors;
- Uncertainty in future risk projections and the diversity across regions and health outcomes;
- Diversity of stakeholders (inter-sectoral, cross-sectoral and sectoral activities required);
- Temporality of climate change and variety of adaptation responses required;

- Existing management systems surrounding human health;
- Current versus future vulnerability considerations;
- Variety of social conditions across regions and resource constraints.

To address these challenges, primary health care and community service organisations will need to build flexibility into their responses to climate change impacts (Ebi et al., 2006; Frumkin & McMichael, 2008; World Health Organization, 2008) they need to be prepared to modify existing prevention strategies as new information arises and develop new policies as new climate-related threats arise.

Beyond these challenges related to the complex problem structure of adaptation, decision-making processes for adaptation may be hampered by individual psychological factors as well as group dynamics. Looking at psychological barriers to adaptation, Gifford (2011) identified seven typical 'dragons of inaction':

- Limited cognition about the problem;
- Ideological worldviews that tend to preclude pro-environmental attitudes and behaviour;
- Comparisons with key other people;
- Sunk costs and behavioural momentum;
- Discredence toward experts and authorities;
- Perceived risks of change; and
- Positive but inadequate behaviour change.

Resonating with these observations is a recent study that examined preferences and perceived risks associated with adaptation strategies (Tam & McDaniels, 2013).Conducted in the natural resource management sector, the study showed that individuals tend to act conservatively when it comes to adaptation, preferring measures that were most similar to the status quo. In practice, this suggests that greater acceptability of adaptation measures can be achieved by highlighting how these measures relate to existing techniques and processes and deemphasising their perceived novelty (ibid.).

Underlying such individual barriers to adaptation decision-making are differing value systems held by the stakeholders involved in adaptation processes, which influence how climate change is interpreted, which impacts are deemed significant, and what decisions can be made and supported by individuals and groups involved (Hulme, 2009; Heazle, 2010; O'Brien & Wolf, 2010).

4.5 Building community resilience

Community-level organisations can be instrumental in planning for and responding to climate change impacts in an inclusive, fair and proactive manner. Many primary health care and community service

organisations are ideally placed to harness this opportunity and play a significant role in building community resilience in the face of climate change and other challenges.

Healthy communities for effective adaptation

Considering opportunities for community and societal level actions, many governments, communities and environmental organisations have begun to develop integrated strategies for climate mitigation and adaptation informed by a commitment to creating healthy, just and sustainable outcomes (Edwards & Wiseman, 2009; Walker et al., 2011).Primary care and community welfare organisations can play an active part in reducing human vulnerability to climate variability and change through promotion of 'healthy people, healthy homes and healthy communities' (Srinivasan et al., 2003). Health promotion, i.e. 'to help people take control over the matters that influence their health' (Walker et al., 2011: s.10) can be a direct conduit for improving community health and resilience. The Victorian Department of Health uses the following categories for characterising health promotion interventions:

- Settings and supportive environments;
- Community action for social and environmental change;
- Social marketing and health information;
- Health education and skill development; and
- Screening, individual risk factor assessment and immunisation.

Srinivasan *et al.* (2003) argues that healthy people are less likely to suffer disaster-related morbidity or mortality and are therefore more disaster-resilient. Beatley (1998: ch.8) comments that healthy communities 'minimize exposure of people and property to natural disasters', and that 'sustainable communities are disaster-resilient communities'. While these statements are somewhat broad and idealistic, many scholars discuss how public health preparedness and response activities can contribute to building community resilience and how these activities can help reduce social vulnerability, including vulnerability to climate change (Keim, 2008; Fritze et al., 2009).

Much of the literature (e.g. Berry et al., 2008; Fritze et al., 2008; Frumkin & McMichael, 2008) notes that the communities (and thus the primary health care and community service organisations working with them) can increase their resilience to adapt to climate change by developing broad and long-sighted strategies from within. This includes endeavouring to attain a more sustainable way of living within the natural and social environment and developing greater awareness of the everyday lives of individuals within the community (Beatley, 1998; Berry et al., 2008; Fritze et al., 2008; Frumkin et al., 2008). Fritze et al. (2008: p.13), in a concluding discussion on the potential mental health effects of climate change, summarise this sentiment in by stating that:

> *'[T]he larger – and increasingly urgent – challenge is to begin to envisage and build social and economic relationships that are based on sustainable and just patterns of growth and consumption'.*

Engaging individuals and communities in adaptation

Research indicates that single adaptation options will not serve all individuals within a community equally (Ebi & Semenza, 2008; Lim et al., 2004; Anderson, 2009). Having individuals from across a community participate in adaptation planning and resilience building is an important step towards ensuring community ownership of adaptation interventions, including those that benefit some more than others.

Local engagement for adaptation can have a range of drivers. Climate change can be perceived as a common threat shared across a community or group of stakeholders and therefore become an impetus for action to build community resilience (Fritze et al., 2008; Walker et al. 2011). Through the shared goal of adaptation to climate change, social relationships can be built that enable and support coordinated and sustained community action. This can be considered a form of social capital that develops as combination of community participation and social cohesion (Coleman, 2000; Ebi & Semenza, 2008; Berry et al., 2010). Higher levels of social capital have been related to better health, in particular in the context of existing high levels of inequality and with regard to mental health (Berry et al., 2010). In this vein, engaging communities in the broader process of adaptation not only enhances resilience to climatic stressors but has the potential to also increase the ability to cope with a wide range of other societal issues (Semenza & Maty, 2007; Ebi & Semenza, 2008; Fritze et al., 2009; Walker et al. 2011).

Practical examples of how to facilitate local engagement and participation are increasingly documented across the primary care and community welfare sector. The Southern Grampians and Glenelg Primary Care Partnership in rural south-west Victoria developed a strategic framework for local community climate change adaptation (Rowe et al., 2008). The local government sector, too, has developed innovative approaches for community participation in adaptation. The Western Port and North East Greenhouse Alliances[3], for example, have undertaken participatory local vulnerability and adaptation planning activities, informed by input from a wide range of local community, private and public sector members (Brooke & Kinrade, 2006; URS et al., 2007). As Anderson (2009) found, such local, identity-based adaptation responses can enable communities to endure hardship imposed by impacts associated with climate change. However, localised approaches that involve true community participation are often constrained by funding and policy environments determined by higher levels of government (Fritze et al., 2008; Walker et al., 2011; Blashki et al., 2011; CAHA, 2012).

More active engagement with climate change issues is not only important at the service recipient or community level; it is equally needed at the level of primary health and community service professionals and the organisations they work in (Costello et al., 2009; Fritze et al., 2009; CAHA, 2012). To facilitate such engagement, Costello et al. (2009) go as far as to call for climate change to be framed as a health issue, arguing this can be achieved by the health professional fraternity because they are

[3] Since 2009, the Western Port Greenhouse Alliance (WPGA) is known as the South East Councils Climate Change Alliance (SECCCA).

usually trusted among the public and are able to attract political attention (Costello et al., 2009; see also: Sweet, 2011; Walker et al., 2011).

The Climate and Health Alliance (CAHA, 2012) and others (Olaris & NYCH, 2008; Walker et al., 2011) highlight that there is a significant lack of knowledge and understanding within Australian health departments and the health sector as a whole regarding the risks posed to health from climate change and the response required through adaptation. This view was recently confirmed by the relatively small number of submissions from the primary care and community welfare sector (see for example Armstrong, 2012; Brotherhood of St Laurence, 2012) to the Productivity Commission's *Barriers to Effective Adaptation* inquiry (Australian Government, 2011a, 2012a). Across the sector, leadership in climate change adaptation is insular and usually depends on individuals rather than organisations taking action (Costello et al., 2009; CAHA, 2012). Given that adaptation is not mandated by government legislation and policies for most organisations, the reliance on individuals carries the risk of the adaptation agenda being short-lived and dropped altogether when staff members leave an organisation (Armstrong, 2012; CAHA, 2012).

4.6 Adaptation governance for better health and well-being outcomes

The sharing of responsibility for climate change adaptation between different levels of government, and between government and civil society, is a matter that is largely unresolved. Developing a transparent and accountable governance regime for health adaptation that builds the capacity of the primary health and community welfare sector are important for succeeding with adaptation.

Building institutions that enable adaptation

Leading scholars suggest that managing the health and community well-being effects of climate change will require an integrated and multidisciplinary approach, characterised by collaboration across sectors, between government and civil society, and between academic disciplines (Costello et al., 2009) 2009). There appears to be consensus within the literature that greater clarity on responsibilities and mandates as well as clearer guidance by governments is required to enable primary care and community welfare organisations to effectively respond to climate impacts (Costello et al., 2009; Fritze et al., 2009; Walker, 2009; Sweet, 2011; Armstrong, 2012; CAHA, 2012). As an example of suggested actions, specific policy recommendations developed by the Western Australian Department of Health (Spickett et al., 2008) include:

- Legislation and regulatory reform;
- Public education and communication;
- Surveillance and monitoring;
- Ecosystem intervention;
- Infrastructure development; and

- Health intervention.

To date, much of the climate-health related literature has focused significantly on assessing and projecting climate change health impacts (Hess et al., 2012) and getting 'bogged down' in the uncertainty debate (Ebi et al., 2006; Moss & Schneider, 2000). The literature suggests that the time is ripe for policies targeted at enabling and supporting practical adaptation action across the sector.

Improving systems to address climate change

Climate change is likely to result in a greater burden on primary health care and community service systems by increasing the intensity and frequency of service responses and the need to prepare for extreme weather events (Carthey et al., 2009; Weaver et al., 2010; Blashki et al., 2011; Hess et al., 2012). However, climate change will not only compound existing health and well-being challenges but also present categorically distinct threats that require innovative management strategies (Hess et al., 2012).

In either case, the primary health and community welfare sector will need to improve capacity to integrate climate change considerations into planning and operations. Weaver et al. (2010) identified six strategies for preparing the health system for climate change, many of which equally apply to the broader community welfare sector:

Health promotion

- Evidence-based and practical information about staying healthy during heat waves and other extreme events;
- Community education about co-benefits for health (and hip-pocket) from adaptation and mitigation strategies (active travel, vegetable-rich diet, building insulation);
- Community development (capacity).

Health protection

- Surveillance - strengthened surveillance of climate-sensitive conditions; enhanced capacity to link weather data with health data; fine-tuning early-warning systems for heatwaves and infection diseases.

Disaster preparedness

- For responses to extreme weather events such as heat waves, cyclones, and floods.

Workforce development

- Pre-employment training (e.g. training of doctors and nurses);
- Continuing professional education for all relevant staff.

Strategic and service planning

- Prioritising programs and interventions where there is potential for co-benefits for health;
- Building surge capacity for responses to extreme weather events.

Healthcare financing

- Investment in current health surveillance systems and population health programs to increase the resilience of the health system;
- Development of innovative models and incentives for 'green' healthcare services.

(Weaver et al., 2010: p.443)

These strategies provide broad guidance on where governments may want to begin their efforts to strengthen primary care and communtiy welfare sector organisations, to better equip them for the challenging task of climate change adaptation.

5 Common themes emerging from the interviews across the primary health and community welfare sector

In this section, we present the findings of the empirical research on current adaptive capacity in the primary health and community welfare sectors. These findings are based on the analysis of semi-structured interviews conducted among PCPs and CSOs in Victorian (see section **Error! Reference source not found.**). We discuss the key themes that have emerged from these interviews in light of the current state of knowledge, as described in the literature review (section 4).

In analysing our primary data, some themes showed to be of importance for the primary health and community welfare sector as a whole, whereas other issues were specific to either CSOs or PCPs. In the following we first discuss common issues that apply to the whole sector (section 5.1), followed by a discussion of specific themes that relate only to CSOs (section **Error! Reference source not found.**) and PCPs (section **Error! Reference source not found.**).

5.1 Many interpretations of climate change adaptation

The interviews revealed the various ways in which respondents discussed climate change and climate change adaptation within the context of their roles and responsibilities. Climate change was framed in different ways. Some differences in framing that were common across CSOs and PCPs are discussed below.

Merging of climate change mitigation and adaptation

In scientific terms, climate change adaptation is usually distinguished from climate change mitigation (i.e. reducing greenhouse gas emissions into the Earth's atmosphere; see 'definitions', section **Error! Reference source not found.**). For the majority of respondents, this distinction was not as clear cut as scientific definitions suggest. Although the term 'adaptation' was used in the semi-structure interview questions, many respondents referred to mitigation measures and their consequences. For example:

> *"The direct impacts, but also the kind of responses to climate change like things around the carbon - for example the carbon price - are likely to have an impact as well." (r8)*

The above quote suggests that, in practice, the scientific categories of mitigation and adaptation often merge, in particular with regard to absorbing energy cost increases by investing in energy efficiency measures. This is reflective of the fact that mitigation measures can result in adaptation co-benefits and vice versa. For example:

> *"We're looking through the systems of hot water and cooling systems and heating systems and the idea is to lower the energy use and obviously reduce*

costs for people in terms of their commitments into the purchase of energy and therefore so reduces for low income people, will reduce the cost to those people. So, win/win situation." (r7)

Although many respondents talked about the direct physical impacts of climate change (as discussed in section **Error! Reference source not found.**), some felt that the main climate change effects their clients or partner agencies have to deal with were related to secondary impacts, such as rising costs for energy and food, as in the following example.

"So it's probably less been about the climate impacts and more about the costs of energy and the kind of energy impacts." (r8)

It also appears that among many organisations, priority is given to climate change mitigation initiatives instead of investing in adaptation efforts – although many mitigation measures result in direct adaptation co-benefits.

"Things like insulating homes or putting in shading can be very beneficial in terms of an adaptive response to heat waves and things like that, but I don't think we've given it as much attention as the energy side." (r8)

"There's a much bigger focus on energy efficiency and cost impacts and things like that." (r8)

Linking climate change adaptation with existing priorities

In line with the above, respondents mostly framed climate change adaptation not as a separate programmatic issue for their organisation but referred to it within their sectoral or organisational goals and objectives. Most commonly, climate change adaptation was linked to the following issues:

- Supporting groups most vulnerable to climate change impacts;
- Impacts of climate change on environmental or social justice;
- Impacts of climate change on the environmental sustainability of organisations;
- Supporting economically disadvantaged groups;
- Energy efficiency and energy affordability;
- Community development;
- Building community resilience.

Unsurprisingly, the above list contains strong references to the social and economic issues that form part of the core business of CSOs and the PCPs' partner agencies. Most of the individuals interviewed

have clearly established the connections between the biophysical phenomena of global warming and climatic change on the one hand and the social and economic challenges that characterise the primary health and community welfare sector on the other hand. Many respondents fully acknowledged the social nature of climate change. One respondent summarised these connections in the following way:

> *"…in my view the environment doesn't have a problem. It's just that people do. […] The ecology can look after itself to an extent." (r1)*

Using the term 'climate change'

The findings from this study support the view that, in Australia, 'climate change' remains a contentious term in public debate. A number of respondents said that they found using of the term 'climate change' resulted in disengagement that was unhelpful for achieving outcomes. Rather than trying to convince clients and other stakeholders of the idea of climate change, some suggested avoiding the term altogether and framing climate change issues in alternative terms. As one respondent put it:

> *"It might be that you use a different terminology: 'Oh you got stuck in the floods last year, remember what that was?' rather than actual climate change, and we're finding that tends to work a bit better than [using] climate change. It's bit of a switch off topic because […] a couple of years ago it was all over the place and we were convinced that it was happening and then we've had a step back and we're not quite so convinced anymore. It is about pulling out what the impacts are, […] that's more important to you than the term climate change." (r5)*

Beyond the ongoing contentious public debate about climate change, there were also suggestions that the term 'climate change' may be too abstract to apply it in organisational settings that require practical, short-term solutions for dealing with climatic impacts:

> *"Well the first step is that you don't talk about climate change because it's an abstract concept. It's so complex that people who understand it have difficulty explaining climate. […] So it's not saying that this [heat] is due to climate change. It's not about saying as a result of climate change you've got to put in blinds. A good thing to do would be to have some shade on the windows during those hot times so that we don't have to rely on the air conditioner when the energy might go out." (r17)*

Growing awareness of biophysical impacts of climate change

Respondents made frequent references to impacts of climate change that the primary health and community welfare sector, their organisations, or they as individuals had experienced. These included direct physical impacts as well as indirect impacts on the social systems in which the organisations operate. Despite the above concerns regarding the use of 'climate change language, the vast majority of CSO and PCP respondents were of the opinion that climate change was 'real', that is was an important current issue, and that climate change adaptation was necessary for society to be able to cope with climate change impacts. Among the professionals interviewed for the study, there was a wide-spread perception that climate change impacts will exacerbate existing inequities among the community and will adversely affect already vulnerable populations. Many interviewees talked about the need to improve the management of existing socio-economic challenges for vulnerable populations as a whole, instead of addressing climate change impacts as a separate issue.

The majority of respondents was aware of and had a good knowledge of the most significant direct biophysical impacts of climate change projected for Victoria. In many cases, this knowledge was underpinned by personal experience of climate-related disasters. While some respondents discussed Victoria-wide and nationally relevant climate change impacts, most respondents talked about a selected number of biophysical impacts that were most significant to their organisation, to their geographic area, or to the clients they worked with. Selectively referring to locally or regionally specific biophysical impacts emphasised the highly situation-specific character of climate change adaptation discussed in the literature (see section 4.2).

Regionally specific biophysical impacts of climate change that CSO and PCP participants had encountered as part of their work were:

- Bushfires
- Drought
- Heatwaves
- Flooding.

In addition, local government staff interviewed in coastal areas referred to sea-level rise as an important climate change impact that increasingly affected the way local governments plan for and implement community development measures.

5.2 Dealing with the socio-economic impacts of climate change

In addition to being aware of the above biophysical impacts of climate change, participants talked in great detail about their experiences with secondary, socio-economic effects of climate change. The terms 'vulnerability', 'disadvantaged', 'vulnerable', 'disadvantaged groups' and 'vulnerable groups' were frequently used to describe those segments of the population that are most affected by climate change impacts, as in the following example:

"You know, our mandate is to provide welfare services to those that need it, and we know that climate change is going to disproportionately affect those disadvantaged communities, and we know that climate change is going to amplify pre-existing disadvantages there and start eroding the pre-requisites for health of the communities and people that we work with." (r3)

Perceived socio-economic impacts of climate change

Most respondents supported the view that climate change can lead to a range of social and economic effects that follow climate-related disasters, as discussed in detail in section 4.2. This included temporary or permanent displacement, mental health problems, loss or disruption of employment due to illness, homelessness and many other forms of social and economic deprivation, as well as increased domestic violence, as in the following example:

"Anything that increases homelessness increases domestic violence. So after we had the […] Black Saturday there was a spike in domestic violence in places like Kinglake. So we do expect when there are natural disaster events, that will result in increased domestic violence." (r23)

Most CSOs and PCPs work with a wide range of partner agencies, clients, community groups or stakeholders. Because of their diversity, these display very different types and degrees of vulnerability to climate change. The client base of the CSOs that participated in the study was particularly diverse, ranging from homeless people to people with physical or mental disabilities, to community members with little or no special needs. Given this diversity, it is not surprising that the interview data supports the view documented in the literature (see section 4.3 above) that the causes for social and economic vulnerability are typically complex and cannot be sufficiently described by referring to singular categories of age, gender or income situation. The following quote is a case in point:

"We've still got some clients that have got a history of Depression time, growing up in the Depression. […] they tend to be very frugal, [and] even the poor people here do tend to be quite well educated. […] So it's kind of a different slant than other parts of my sector that are working with [the] disadvantaged, both socially and economically. […] We might have poor people, but they do tend to have come from middle class or educated backgrounds. You know, they've just run out of money versus not had any to start with." (r53)

As part of their work, interviewees have come across a wide range of secondary, indirect social consequences of extreme weather events and climatic trends associated with climate change. This study could only scratch the surface of these experiences, and further investigation into specific

secondary consequences of climate change at the individual, household and community level is needed to point to specific adaptation options for different types of organisations belonging to the primary health and community welfare sector.

Climate change vulnerability as a social justice issue

Among the organisations interviewed, there appears to be growing awareness of the ethical implications of climate change and the notion of climate justice (discussed in section 4.3), although this remains an area requiring further debate, as the following interviewee suggested:

> *"[…] There's also, I guess, theorising around the links between justice and climate change. Some of our members are pretty active in analysis there. [They are] looking at analysis of the justice impact and analysis of optimal responses, and that's a contested area at the moment." (r9)*

Out of 27 CSO respondents, eight explicitly framed climate change as an issue of social justice, environmental justice or social equity. The main argument put forward in this context was the notion of distributional justice (as described in section 4.3, p.50): the social and economic impacts of climate change are unequally distributed across society, which adversely and disproportionately affects groups that are already economically disadvantaged, both locally and globally:

> *"We are interested in the justice [issue] because these wealthy people are going to find ways to protect themselves and the people they love but it's everybody outside of that in this country as well as overseas." (r68)*

Social justice was considered an important concept to use to examine and better understand climate change impacts on organisations and their clients. Most of the respondents who referred to social justice and similar concepts were members of large organisations, some of which had specific programs or working groups that focus on the equity and justice aspects of climate change. There are exceptions where small CSOs as well as PCPs have developed resources to work specifically on social justice and climate change. However, most of the smaller organisations interested in the issue looked towards information provided by large CSOs and non-governmental organisations, such as the Environmental Defenders Office.

Disability and sensitivity to climate change impacts

Many of the organisations interviewed for this study regularly work with clients with intellectual or physical disabilities, either directly or through their partner agencies. In line with the literature, people living with disabilities were commonly considered to be particularly vulnerable to climate change, often due to underlying social and economic issues that disadvantage them vis-à-vis other segments of the population.

Climate change is a phenomenon that affects people's physical living environment. It is at this intersection between changes to the physical environment where people living with a disability may experience climate change impacts most directly:

> *"A person's disability is only physical at times where they interact with their environment. […] it's the interactions with the community that make disability visible." (r1)*

The above perspective suggests that further exploration of the causes of climate change vulnerability of disabled people is required. It may be useful for primary care and community welfare organisations and government policy makers to join forces to gain a better understanding of what contextual factors, such as economic situation, social or institutional factors, makes individuals with disabilities more *sensitive* to climate change, and environmental change more broadly.

Social isolation as a driver for vulnerability

Another determinant of vulnerability to climate change referred to by respondents across the sector is disparate levels of access to social services. Interviewees talked about the fact that many vulnerable people 'fall through the cracks of the system' and don't receive any support services from a CSO. Often, services provided by CSOs are the main form of social contact for vulnerable or marginalised people, and individuals that do not or cannot access CSO services may miss out on important information and support in the lead up to, during or after extreme weather events:

> *"What happens to those older or even other people who are in their homes who just don't have that resource from the service provider?" (r7)*

These concerns suggest that some individuals who are not in need of special support or care to get through their day-to-day lives may well be particularly vulnerable to climate change events. They may fall below a threshold where they are no longer able to cope with independent day-to-day life when climatic events occur, due to social isolation and because no formal relationships with CSOs exist prior to an event taking place.

The above problem suggests that a focus solely on service recipients currently covered by the primary care and community welfare system may not be inclusive and leave those most in need with no access to support. As a first step to respond to this problem, it would be useful to identify how different climatic events, such as heatwaves, bushfires and flooding, result in specific climate change vulnerabilities for different segments of vulnerable populations, including disabled, elderly or chronically ill individuals.

Energy affordability for cooling and heating

Several respondents observed that economically disadvantaged people, such as elderly people on pensions, single mothers, families on single incomes, or the unemployed, suffer from indirect impacts of climate change during periods of extreme temperatures, such as cold snaps and heat waves, because

they cannot afford appropriate heating or cooling. Many people belonging to the above social groups live in housing with poor insulation and a lack of appropriate heating and cooling equipment. Others have heaters and cooling units that use a lot of energy, which is becoming increasingly unaffordable:

> *"Because they can't afford to pay bills […], they won't put on their air conditioner […] because it takes up so much energy." (r7)*

In the context of rising energy prices, social equity questions regarding energy affordability are on the rise of the agendas of many organisations, albeit predominantly the larger ones. As one respondent put it:

> *"And increasingly, I guess, there is a bit of a shift. Increasingly [my role is] becoming also about energy affordability, and making sure energy is affordable." (r8)*

The increasing problem and awareness of energy affordability is another example illustrating that climate change mitigation and adaptation are closely intertwined. As energy prices increase, opportunities arise to provide people vulnerable to the impacts of climate change with access to more energy efficient forms of heating and cooling, to lower their greenhouse gas emissions and, at the same time, increase their ability to adapt to changing climatic extremes.

Gendered climate change impacts

Some respondents discussed the gender-specific impacts of climate change and raised gender inequality as a significant existing issue that can become amplified by the impacts of climate change and lead to disproportionate health and well-being impacts for women. Gendered impacts of climate change are discussed in the literature primarily with regard to the different mental health impacts on men and women (see section 4.2, p.45) or through evidence that women in general, or subgroups of women, are more vulnerable to climate change (see section 4.3). The research revealed more nuanced perspectives on the way women are affected by climate change. For example, interviewees observed that *"because women live longer than men, they tend to suffer the health problems that come with old age more severely" (r67)*. The difference in life expectancy increases women's baseline vulnerability, including their and exposure and sensitivity to climate change.

Respondents from women's health organisations were particularly concerned about how climate change will affect disabled women:

> *"Because disabled women are some of the most disempowered in society and the effect of climate change on this [existing issue] is quite worrying." (r67)*

Interviewees also observed that non-acute, slow-onset climate change impacts, which threaten people's livelihoods, can lead to severe mental health consequences, which may be gendered. Rates of domestic violence may increase, targeted predominantly at women, while in the context of farming

communities, respondents talked about the mental health impacts of prolonged drought on rural men, as discussed above.

Advocating on behalf of vulnerable people

The interview data suggested that a core role of CSOs and PCPs in climate change adaptation could be to facilitate and communicate better understanding of climate change related vulnerability among the community:

> *"I think for the community sector to know the people that they're working with, who is vulnerable and the focus on that, I think is important. Because I think that's very much how the health and community sectors work, […] to focus on the vulnerable people in the community and to understand that connection between, you know, vulnerability to climate change and people who are already disadvantaged and vulnerable in other ways. I think that link is important." (r66)*

Most CSOs engage directly with members of the community, giving them a unique opportunity to not only disseminate information about climate change impacts and vulnerability, but also to foster individual adaptation action among community members. Many CSOs had residential programs for vulnerable groups (such as the elderly) where they worked with people in their own community context, often in their own homes. One CSO, for example, had developed checklists for specific climate impacts, such as heatwaves, and issued health warnings to clients, including recommending particular adaptive actions. In general, respondents expressed a sentiment that CSOs had a unique responsibility to care for members of the community unable to look after themselves or seek assistance from family and friends. This responsibility also extended to climatic events and climate change:

> *"There needs to be a lot more done around adaptation and preparing for adaptation, both for the service organisations, but also for people who aren't in a position to assist themselves for that sort of pre-emptive adaptation kind of responses". (r3)*

Ultimately, climate change adaptation offers many opportunities to 'connect the dots' between existing social and economic challenges that affect individuals and communities. The interview data suggests that the current emerging impetus for adaptation may allow for a re-focussing of the sector's work on vulnerable people and the compounding effects of climate change and other processes of social, economic and environmental change:

> *"I don't have any problems with [the fact that other issues are] prioritised over [climate change adaptation].But [climate change] is really important and*

it does have significant long term implications. I also think it has a lot of potential to really bring out connections between disadvantage, economic and otherwise, and women's poverty and […] sort of draw out all the common threads, and make it clear […] how this leads to certain people being disadvantaged." (r67)

5.3 Regional differences in climate change awareness and vulnerability

It is well documented in the literature that the impacts of climate and climate change, and hence the distribution of climate change vulnerabilities, are subject to geographic variation (see section 4.2).

Regionally differentiated perceptions of climate change

It was evident through analysis of the data that disparities existed in the understanding and perception of climate change impacts and adaptation between rural and urban settings. Interview data from participants in rural areas showed that the acceptance of climate change and an understanding of the associated terminology were not as widespread in rural areas than in urban areas. Participants talked about that the lack of awareness among rural populations may be associated with the range of extreme weather experience of their communities. Farmers in particular had faced extreme weather events throughout their life. This influenced the ability of rural PCPs and CSOs to communicate and act on climate change impacts and adaptation. As a remedy, some interviewees suggested that using terminology such as 'climate variability' or 'weather events' instead of 'climate change' language was more likely to result in community and partner agency support.

"I think it represents the differences in understanding of climate change in our region. It would be different if I was living in Melbourne. Extreme weather events and drought are right in your face here." (r64)

Regional patterns of climate change vulnerability

Respondents from rural areas reported that many individuals in rural areas suffered from indirect effects of climate change, such as mental health implications, but they were less inclined than those in urban settings to talk about it or seek help. Often, appropriate support was not readily available. Some rural interviewees stated that their regional geographic context influenced individual and community-level vulnerability towards the health impacts of climate change. Geographic differentiation of climate change impacts can occur due to differences in exposure to climate related impacts, e.g. localised exposure to floods or severe bushfire. Regional differences in climate change vulnerability can also exist due to structural socio-economic differences, e.g. between economically thriving rural areas and those undergoing economic contraction. Some of these regional dynamics may be caused or exacerbated by climate change itself, e.g. as shown in the case of the recent 14-year drought and its impact on small farming communities in marginal agricultural areas.

The following quote talks about the consequences of the lack of tailored support in the health system for those affected by climate change impacts:

> *"There were a lot of suicides with the drought. There were a lot of family breakdowns, a lot of you know farms having to be sold for not much money. So a lot of you knew very unhappy people, and people you know having extreme events in their lives and really needing to have that sort of support and it was not there. […] Especially for extreme events. So, someone locking themselves in a shed with a shot gun." (r64)*

The interviews revealed rich stories about the spatially diverse social impacts of climate change, which depend on regional climate change impacts and their interactions with prevailing livelihood systems. Regional climate change impacts can lead to social ramifications that affect whole communities and rural areas. The following quote articulates these dynamics between climatic and social change:

> *"As you head towards [Victorian region] where farming […] is more prevalent, […] we've had some instances there of suicide in our farms and that sort of stuff during the drought period. And that is devastating consequences and impacts on the young people affected by that, especially in small towns. […] The smaller the town you get, the more of an impact it has because it doesn't matter if it was your father or your grandfather or your brother. You know people are known within the towns. It impacts everybody." (r6)*

The above observations illustrate that it is difficult to ascertain the actual social impacts of climate change by looking at single statistical variables only, such as rural suicide rates or regional rates of unemployment. While useful for measuring singular trends, such quantitative figures tend conceal the actual detrimental effects that singular events or trends can have on social cohesion, community resilience and general well-being. At the very least, climate change adaptation measures should try to take regionally specific impacts of climate change into account in their entirety, including qualitative aspects considered vital to the functioning of rural communities and households.

5.4 Accessing information to enable adaptation

One of the interview questions focused on the climate change information needs of the organisations participating in the study (see

Appendix 1: Outline used for semi-structured interviews for a full list of interview questions). The interview data suggests that a wide range of views existed among PCPs and CSOs regarding:

- The sources of useful information on climate change impacts and adaptation
- What constitutes useful information
- The accessibility of such information
- The extent to which such information was required to inform CSO work on climate change adaptation.

Trusted sources of information

Respondents cited a range of formal and informal sources of information on climate change impacts and adaptation. The following types of organisations were mentioned most often as being trusted for providing climate change information relevant to the primary health and community welfare sector:

- Research organisations (e.g. CSIRO, universities, National Climate Change Adaptation Research Facility, Victorian Centre for Climate Change Adaptation Research)
- Federal and state government departments and agencies (e.g. the Bureau of Meteorology and the Climate Commission)
- Local government
- Sector peak bodies (Australian Council of Social Service, Victorian Council of Social Service)
- Non-governmental organisations (e.g. Climate and Health Alliance and the Environmental Defender's Offices)

However, awareness of these organisations and the information they provide differed a lot among participants. Many respondents said they would start by conducting an internet search. Others stated they largely rely on peer-to-peer sharing of information and on gaining an understanding of what other organisations in the sector are doing, for example by attending conferences and sector forums.

An interesting finding was that some CSOs, with different staff size and service recipient profiles, had begun to undertake their own secondary research into climate change impacts and responses. Most of these organisations emphasised that they had found it difficult to access funding for conducting such research; despite a lack of funding, they found ways for engaging in research on the implications of climate change on their service delivery. In many instances, these CSOs perceived themselves as information providers for the primary health and community welfare sector and the associated networks and as advocates for service recipients and clients:

> *"We try to be an advocacy organisation and an influencing organisation, so we do have a research area […] Information to be well informed is how we work,*

so even if we have services, we always say we are not in the role of just having services." (r7)

What is useful information?

Many CSOs felt that hard, quantitative information on climate change and its impacts is useful to motivate action. This included post-impact information on social impacts of climate change (e.g. number of excess deaths and hospitalisation), as provided by the Victorian Department of Human Services and others after the February 2009 heatwave and bushfires. Such statistical information was deemed useful:

"Because that makes it very kind of stark, the kind of impact of heatwaves. […] That really brings it home that climate related impacts can have a really big impact now […] and so it really is a case of kind of saying 'Well, there is actually a lot of science behind it.'" (r8)

However, the pure scientific facts may not always be easy to digest by diverse audiences. Information on climate change impacts needs to be tailored to the different demographic groups that an organisation liaises with. This may include people who have had little exposure to scientific principles or limited formal education. Audiences may also include those with clearly sceptical attitudes towards climate change:

"So for example trying to communicate this to older people, you know, that's quite [difficult], because […] our community is pretty conservative […] and there are a lot of sceptics out there who just don't think this is going to happen. So communicating to them in a way that they can understand and appreciate […] the effects as we've already experienced […] certainly does require translation - there's no doubt about that." (r4)

As organisations develop their capacities to develop and implement specific adaptation actions, it could be useful to share information on successful, effective adaptation action with the wider sector and beyond. Government could play a role in facilitating such exchange of information – a sentiment expressed by many respondents, including the following one:

"From government, I guess, you'd almost need to have a little map of the climate change impacts, and to what extent we're ticking off our responses in relation to those impacts." (r8)

Access to climate change information

Many respondents said that they thought that there was a lot of information out there but that they would find it difficult to find or access. This seemed to be particularly the case with regard to accessing latest research. Some CSOs have established well-functioning collaborations with research organisations, or they have engaged students in their work. Through either academic staff or students they were able to gain access to academic journals and other literature that is unaffordable to purchase. Those CSOs that have managed to develop their own research capacity in-house or through collaboration with researchers thought it was difficult to gain access to specialised and trusted information on climate change impacts other than by referring to the peer-reviewed academic literature.

This points to the potential role of research organisations as valuable partners for those CSOs that do not have the capacity to set up their own research branches. There may also be an opportunity for government or peak body organisations to provide access and guidance to academic literature relevant to the broader primary health and community welfare sector.

However, there was also a sense that such specific information on climate change impacts and adaptation could be provided centrally from a government department. Targeted information provision on climate change adaptation by the Victorian Government, for example, could provide an impetus for adaptation action at the organisational level, as the following quote suggests:

> *"So kind of making that really clear connection between climate change and disadvantage and then more directly between climate change and our service delivery through whatever means. I guess if it comes from DHS, well you know, that would get people thinking." (r3)*

Adequacy of climate change information

Several respondents stated that they felt overwhelmed with some of the information available on climate change. Information focused on local or regional settings was found to be most useful, and that that there was an overabundance of vague material on climate change issues. In term of providing information and guidance on adaptation, it was considered most useful to focus on sector-specific impacts and adaptation issues, rather than bombarding PCPs with new information pitched at larger geographic or administrative scales. To this effect there was a strong desire within PCPs for additional information relating specifically to climate change impacts on health. PCPs thought that improved provision of this type of information will help motivate the primary health and community welfare sector to adapt to climate change:

> *"I think climate change - people think that's too big picture stuff. […] Is there any documentation that in these weather [events] has there been an increase in presentation in a particular vulnerably group, […] chronic illness […], elderly or infant […]? Can we actually find evidence saying that*

climate change is impacting health […]? That will mean that we will review our process. […] They are the sort of things that will help guide future health." (r59)

Participants talked about different types of impact of climate variability and change, including direct and indirect impacts. Some respondents expressed concern surrounding the perception of risk associated with each of these impacts. It was suggested that the media contributed to a widespread skewed perception of climate impact risk:

"I don't think people realised, there were more people died in Victoria from heatwave that summer than died from the fires which was 230 something, and that, you know, while that is set out loud and known in circles that I move in, the general public think, you know, all those awful bushfires everybody die […] it's all about 24 hour news cycle type stuff […] and what's visual and what can sell." (r65)

In terms of information availability and understanding, many PCPs expressed that they have to search for information themselves. *"I google it" (r25)* was a regular reference made throughout PCP interviews, but there was a general response that PCP representatives didn't have enough time to put a concerted effort into sourcing applicable information to their section and region. Many felt that although there was a lot of information available on the internet, to pull it together meaningfully requires a lot of effort. Respondents felt that practical, sector-specific information was not readily available, and not locally specific enough, and that more and better targeted health related information on climate change impacts should be issued by the Department of Health. The following quote epitomises a view shared by many respondents:

"There is no support from the Department of Health. […] They gave out some brochures 100 years ago." (r37)

In addition, there was confusion between general sustainability outcomes, climate change mitigation, and climate change adaptation among PCPs. When prompted, the following actions were mentioned as climate change actions: recycling, walking, Be Well Be Active campaigns, healthy eating, limiting drinking soft drinks in cans, and building community gardens. These actions were all perceived to reduce greenhouse gas emissions and therefore address climate change. A perception among some respondents was that *"placing an environmental lens on" (r56)* existing health promotion strategies will be sufficient to address climate change impacts.

Not enough or too much information

Among the respondents interviewed, two distinct views emerged regarding the availability of information on climate change impacts: the majority of interviewees found that there was not enough

relevant information available, while the minority considered existing information to be too much and too confusing:

> *"In a sense, I mean there is absolute information overload." (r9)*

There was also a somewhat mixed view that too much general information existed, while not enough sector specific, practical information was available for the primary health and community welfare sector. According to this view, existing information on climate change impacts was difficult to navigate, while it was equally difficult to find the 'rare gems' of useful, practical information targeted at primary health and community welfare sector practitioners. 'Practical information' in most cases meant details about specific current and projected impacts of climate change on CSOs and their clients, as well as guidance on how to best respond to and plan for such impacts.

Participants identified particularly critical and glaring information gaps with regard to the interconnections between climate change, mental health and vulnerable groups on the one hand and linkages between disability and climate change on the other hand. It was also felt that more information was needed regarding the role of violence in the aftermath of extreme weather events.

How important is information?

Some respondents belonging to the group that considered there was enough or too much information available also took on the view that information alone is not going to help CSOs to adapt to climate change. The main challenge was not to generate or find more information but how to use existing information in community and client settings and deciding how information can lead to adaptation action:

> *"I know there is a lot around information and knowledge of how we cope in extreme events […] perhaps it's not the information, it's about the community connections and the way the information is passed on that's probably very important." (r9)*

> *"And, but, and I suppose that's the other side of the information - you can have the information, it's about what you do with it." (r7)*

> *"I think we say: 'You know what? We've got this information. Come and help us make the decisions. […] We can't be making decisions for you.'" (r5)*

5.5 Clarifying the roles of governments in adaptation

Throughout the interviews, respondents made reference to what role different levels of government currently play, or could potentially play in the future, with regard to climate change adaptation. The study's specific interest was to gain a better understanding of the role of the state government

departments that fund and provide guidance to CSOs and PCPs in Victoria: the Department of Human Services and the Department of Health. In the following we provide a summary of the common points made regarding:

- Governance and shared responsibility for adaptation
- The perceived current roles responsibilities of different levels of government

Governance and shared responsibility

During interviews, ample reference was made to the role of all three tiers of government in the context of providing policy frameworks, guidance and funding for adaptation.

> *"[Climate change adaptation] is not really a high priority […] So it's when the government says: 'You need to incorporate this' that it gets the management's serious attention in the different areas. What [this] says to me around our services is that the government can play a really important role, and probably the most powerful role." (r8)*

Although many CSOs and all PCPs are primarily funded by the Victorian state government, current and impending federal government policy processes were considered significant in the context of climate change adaptation. Similarly, individuals working on community issues at the local government level indicated that community members had an expectation that government (state and local) were in an influential role and had the responsibility to advise CSOs on what to do about adaptation:

> *"I think there is an expectation […] – I think we rely on government, State, Local and Federal Government, to provide us with the answers [for climate change adaptation], and I think that our community has sort of given away their responsibility." (r5)*

On the other hand, the idea of *shared responsibility* was directly referred to by some interviewees with regard to climate change adaptation. The following quote, from a local government respondent, emphasises that there are limitations about the decisions any level government is willing to make on behalf of its citizens:

> *"There are some things that we have to make decisions around, but it's about […] that shared responsibility, and I guess that's the approach we would probably take." (r5)*

One of the perceived problems related to the sharing of responsibility was the siloed nature of government departments. As respondents explained, departmental siloes made it difficult to liaise with government, especially when dealing with multiple departments. In addition, some argued that a lack

of coordination across departments has led to a narrow understanding of climate change impacts on sectors and sub-sectors. CSOs saw themselves in a good position to ascertain the situation on the ground in a more comprehensive way, which could lead to improved policies:

> *"Government departments don't talk to each other enough to see the impacts of this sort […] going through all of their different continuums of service delivery´. […] We are in an amazing position to help others stitch this up and create [a holistic picture]." (r41)*

Currently, guidance from state government departments exists on issues closely related to climate change adaptation, such as supporting best practice in planning for emergencies. However, this guidance was considered limited and only able to support certain activities that could be classified as adaptation, and interviewees pointed to a lack of concern for environmental and climate change issues in existing service agreements:

> *"I've just been involved in […] a consultation in Melbourne about service agreements with the Department of Human Services; the environment didn't get mentioned, of course." (r10).*

Most CSOs expect state governments to provide additional, more specific guidance for adaptation, such as the heatwave guidance provided by the Department of Health and the Department of Human Services. Some also call for specific tools that support CSOs to move from understanding impacts to devising adaptation measures for their organisations and clients:

> *"In terms of the impact of climate change, there wouldn't be a client within our organisation who couldn't […] benefit from a greater understanding about what that is and how that's going to impact on them, and what their rights and responsibilities might be within it, and what they can do to equip themselves using a strengths-based approach to be able to navigate some of those things." (r41).*

Perceived responsibilities of the Australian Government

All PCP respondents (n=23) and the majority of CSO respondents expressed a need for more formalised policy guidance on climate change adaptation in the primary health and community welfare sector. However, opinions varied regarding which level of government should provide adaptation policy frameworks. Some participants stated that it was primarily the role of federal government to mandate and regulate adaptation action, especially in the context of the Commonwealth Health Reform (Australian Government, 2011b) and the chance that *"community health funding and PCP would all go to the Commonwealth and be managed from the Commonwealth." (r55)*

Others expressed frustration regarding the lack of current guidance "*in terms of how we respond to climate change at the federal government level, as it pertains to health" (r13)* and that this lack of direction was a reflection of how the Australian Government does not seem to fully grasp the implications of climate change on health and community services. Respondents took the view that the respective federal government departments were not taking ownership of their mandate with regard to the adaptation agenda, and that clarity with regard to departmental responsibilities was lacking:

> *"So the Health Department don't feel like they have the responsibility for it, and the Climate Change Department don't feel that health is necessarily their responsibility. So there's a huge gap in terms of response […]. The nexus between those two portfolios is missing, and we really need to bring some strategies to this intensive developing and integrated response." (r13)*

Some participants referred to the hazards management guidelines recommended by the National Department of Health and Ageing (Australian Government, 2012b), which provided guidance for *"what to do in extreme weather events"*, but that these were only "*guidelines, it's not a legislative piece of paper" (r59).* Respondents stated that that these guidelines were useful if adopted and recognised in practice, but that such adoption relied purely on the integrity and initiative of managers and higher executives. Similarly, it was argued that without specific regulation, the motivation for bringing about effective adaptation responses was bound to vary significantly across the sector, and without national legislation, adaptation in the primary health and community welfare sector would likely be compromised.

Perceived Victorian Government responsibilities

The majority of participants perceived the Victorian Government as having the most significant role to play in progressing climate change adaptation action in the sector. Through providing funding, state government has a clear role to play to provide guidance to CSOs regarding how to respond to climate change impacts:

> *"Adaptation in relation to our clients is very much driven by the Victorian State Department saying: this is what you need to be doing." (r8)*

To some extent, this is not surprising given that most organisations draw some or all of their funding from state government sources. On the other hand, however, it is a strong endorsement and call to action from the sector, asking for improved guidance and regulation from the level of government deemed most appropriate and able to provide such guidance. Across all PCP interviews, for example, respondents expressed the need for a 'black and white' Department of Health policy that would mandate adaptation action in the primary health and community welfare sector for both PCPs and their associated agencies. All PCP respondents (n=23), in one form or another, talked about the need for state government leadership to clarify where adaptation fits within PCP strategic priorities. All PCP respondents agreed that such leadership primarily needed to come from the Department of Health.

Perceived local government responsibilities

"All I can really say is that local government has been mandated to fix it [climate change]." (r25)

Approximately 20% of PCP participants acknowledged that role that state government directives played in instructing PCPs to address climate change when developing Municipal Health and Wellbeing Plans (MHWPs) with their associated local government (see Victorian Government 2012a). These respondents felt that this was the only formal recognition of climate change relevant to their sector and that it was by no means sufficient, nor adequately regulated, to support adaptation.

Some respondents thought that due to this loose consideration of adaptation within the MHWP, addressing climate change impacts could become another 'tick the box' criterion, without actual consideration for, or implementation of, effective adaptation actions:

"I have heard comments from local government around 'Oh, you know, we'll be looking at our key health issues in this region' or basically in whatever [region] they might be [in], and 'Oh yeah, we have to put in some climate change somewhere' because that's a mandated thing." (r36)

In several instances, participants felt that it was not the role of the organisation to address climate change impacts – instead this was deemed primarily the responsibility of local governments, because they were the main government bodies funded for emergency management in a given area. The perception that climate change adaptation was predominantly an issue of emergency management and response was particularly strong among PCPs (see section **Error! Reference source not found.** for further details on this point). Historically, this responsibility had been placed with state and local government authorities. Because of this institutional history, climate change, on the other hand, had not been associated with PCPs, and there was no particular need to develop capacity in emergency management for PCPs. This may partially explain why many PCP and CSO respondents considered local government to be the experts in addressing climate change issues at the local level:

"I know I think that climate change and, you know, responding to emergencies is at the forefront of shires […] So I definitely think it's sitting with them [local government]. […] They've got the strength at the moment, they're the experts." (r54)

There was, however, acknowledgement among some respondents that, despite the strong dependence on local government taking care of adaptation, local governments themselves were equally unsure of how to proceed with adaptation:

"If you were to say to me, 'Well, who should be leading in this area?' I would probably say, 'Local government', but I don't really think they are and I can understand why." (r36)

To some extent, PCPs' strong reliance on local government to address climate change impacts may stem from issues such as the accessibility of funding streams associated with adaptation and the close association of adaptation with emergency response. These points are discussed in section **Error! Reference source not found.** and in section 8.4, respectively.

Dominance of reactive responses to climatic events

This perception was closely associated with participants stating that there was very little proactive planning for climate change impacts within the primary health and community welfare sector, and that emergency management should not be re-branded as climate change adaptation *(r38)*. Participants reported that due to this reactive approach to climate related events (such as floods, bushfires, heatwaves, and storms), service delivery within their sector was often stalled for long periods of time. Even after a disastrous climate-related event, organisations remained in catch-up mode for some time. Reaction rather than proactive planning seemed to be the norm across the board, with many respondents making statements in support of this view:

"I suppose from my perspective it's very much looking at reactive kind of, so what can we put in place when a disaster happens, you know to make sure the community is safe and they've got their plans and all that kind of thing." (r12)

"If you look at the reactive versus proactive scale, it's definitely more reactive than proactive." (r55)

Respondents held different views regarding the causes for the engrained emergency response focus. Many individuals commented on the long held dominance of emergency management within local and state government. Many PCPs appeared to be closely associated not only with a local government, but also with emergency management services such as the CFA, Ambulance Australia and the local Police, which may be an influencing factor in emphasising reactive versus proactive responses to climate change. Some participants stated that the main cause for the dominance of reactive approaches is due to existing paradigms at the level of the Victorian Government:

"The Department is responsive […] and therefore our agencies are responsive." (r36)

Other reasons given for the focus on reaction included fear of the unknown (and therefore a reluctance to plan ahead) and a lack of understanding of the nature of climate change and its associated impacts.

As an example, one respondent commented that there was a strong response from the primary health and community welfare sector during the 2009 Black Saturday bushfires, supported by heightened media coverage. In contrast, it took a long time for building awareness that the heatwave that occurred in parallel led to more deaths than the bushfire itself.

The focus on being ready and able to respond to disaster evens as they are occurring appeared to cause an 'adaptation paralysis' of sorts across the sector, impeding proactive adaptation planning:

> *"I just think that we're all together far too reactive about this stuff [climate change adaptation] and I suppose a bit ignorant, I mean […] it's a mixture of not wanting to know and [being] afraid, and we don't really understand it." (r.36)*

The need for adaptation policies

Specific comments were made regarding the sectors' need to be guided on taking on adaptation as a priority, including clear messages about climate change impacts, how adaptation can be implemented, and the associated provision of information and resources. Many research participants concluded that for action to occur, a stronger policy framework was essential. In the words of one respondent, what was needed was clear instruction from a government department, along the following lines:

> *"Here's a policy and we're going to check whether you're doing it. And here's a policy and we're going to provide resources, tools, templates, processes and forums to help you get your systems in place to better adapt." (r37)*

As an example, a common perception among PCP participants was that the Department of Health had not provided strong enough policy guidance on addressing climate change impacts. Some PCPs noted that the Department of Health don't prioritise adaptation and, consequently, it was not surprising that most PCPs didn't either:

> *"The PCP, we're directed by the Department of Health and this is certainly not something that the Department has thrust at us at this stage." (r54)*

> *"It's very tenuous kind of you know, we've been told quite clearly not to really focus that much [on climate change adaptation] but more […] kind of give a nod to it." (r12)*

5.6 Funding and other types of resourcing for adaptation

For smaller organisations with little core financial resources, lack of staff capacity emerged as one of the main barriers to developing organisational capacity for adaptation. For most organisations, climate

change adaptation is considered part of their core business yet, and reduced funding or otherwise worsening financial situations seem to almost immediately affect those involved in issues outside of the organisation's core business:

> *"The biggest thing is just resources in terms of funding and time. […] We're the only two people at this organisation [dealing with climate change issues], but there's no scope for us to employ anyone else and our budgets were just decreased by the Baillieu government recently anyway." (r67)*

Some CSOs (but only very few of the PCPs) have one or more staff members within their organisation focused on climate change research and policy and integrating these within service delivery and organisational operations. Among PCPs, many respondents expressed concerns about the high internal competition for employee time across many responsibilities within a PCP, and about the reality that most staff were on part-time employment contracts and already stretched. Very little funding was available to increase internal capacity and therefore PCPs had little room to move to address climate change impacts. Similarly, many participants acknowledged the competition for funding across different priorities within their PCP. Consistently throughout all interviews, comments repeatedly echoed the view that *"in the end it's about funding and time" (r65).*

Numerous references were made throughout interviews to the vital role of funding from state government and other levels of government for making progress on adaptation, using grant funding opportunities. The availability of specific funding for climate change adaptation critically influenced an organisation's adaptive capacity. In addition, the service agreements that regulate the flow of funding between government departments and organisations play an important role with regard to some aspects of adaptation, such as risk management. Funding is considered a key driver and enabler for making progress on adaptation by many:

> *"A lot of our action in these areas seems to me very much driven […] by government, and government's […] control of funding, and therefore the obligations they put on organisations. There's not that much autonomous action by us." (r18)*

Nevertheless, several organisations that participated in the study were able to gradually progress adaptation as an issue of organisational importance even when adequate funding wasn't available. Among these, a more differentiated view of the importance of funding existed, based on their own experience. Some argued that the rules and regulations attached to funding schemes had a restrictive effect on adaptation: they limited what an organisation could do, how it would approach an issue such as adaptation, and what adaptation planning and response measures could be put in place. The following quote summarises this view:

"[The CSOs'] response to and planning for climate change […] is determined by the contract. […] There's less flexibility. […] It's very much resource-orientated […], which has its strengths but also actually negates or fails to bring in all the other […] resources such as innovation. A whole lot of other things will get precluded from that. […] It is very rigid, it only serves some, and it captures and constrains innovation." (r60)

For most organisations, climate change adaptation remains an outlier, 'nice to have' activity, not a priority. This means that staff members working on adaptation and their associated projects are constantly under threat of termination due to an organisational refocussing on core business:

"It's always a constant amazement to me that [my organisation] keeps funding the work that myself and my colleague have been doing [on climate change]. So it obviously ranks somewhere […] but part of the ranking is around […] issues of energy affordability and household finances. […] It's a harder case to start to talk about climate change itself." (r8)

According to most of the CSOs interviewed, access to appropriate financial resources was perceived to be directly linked to increasing the organisational capacity to respond to climate change. A lack of funding, on the other hand, was seen to be the biggest barrier to making progress on adaptation. Many of the CSOs interviewed stated that they have received little or no specific funding for climate change related projects, despite having tried repeatedly.

6 CSOs: Specific themes emerging from the interviews

In addition to the common themes identified across the sector discussed above, the analysis of CSO interviews revealed some ideas, concerns and challenges with regard to organisational climate change adaptation that were unique to CSOs. As mentioned in sections 3.3 above, the great variety of the CSO sector could not be fully represented through this study, although some of the issues raised appeared to be common across the sector.

6.1 Making adaptation relevant to the sector

Across the CSO sector, many respondents talked about difficulty in understanding the specifics reasoning for carrying out climate change adaptation activities in their organisation. In these cases, individuals interviewed were well aware of climate change and its current and future impacts. However, they had difficulty to either see how climate change impacts most related to their organisation and its clients or found it challenging to consider a process for how the organisation could deal with climate change impacts and adaptation. The following quote exemplifies this commonly held view:

> *"If we had something like […] this kind of science: this is just kind of a picture, this is where we sit [with regard to climate change], and how that relates to us, and the different geographies and the types of work we do, and this is the response that we could do… I guess to have that kind of planned agenda, and then getting the organisational [level] to do all this properly. That type of process, I think would make a big difference.' (r8)*

The above quote points to a number of information gaps (see section 5.4) and highlights the current lack of a clear policy agenda and accountability for implementing adaptation at the organisational level.

> *"There's a thing about organisational realm […] where there's a bit of a sense [that] we're not the ones who should be talking about what type of action should happen on climate change. […] It's like that's the environmental groups that should be talking about that - except where it relates to low income and vulnerable households." (r8)*

6.2 Adaptation leadership from senior management

The question of leadership for adaptation was discussed in many CSO interviews. Senior management leadership on adaptation was considered crucial for making substantial progress with adaptation. Many CSO respondents emphasised that, to be proactive in planning for climate change, they relied on support or directives from their senior management. CSOs that had a supportive board or, in some

instances, a single director who considered climate change adaptation an important issue, felt better equipped to plan for climate change:

> *"And we have an Executive Director who supports [work on climate change impacts and adaptation] and supports the payment of those things to be occurring and the research that comes with that." (r7)*

Yet senior management leadership on adaptation is not confined to providing direction and giving financial authority for projects and activities to go ahead. During the early stages of building organisational capacity for adaptation, leadership can be effective in the form of endorsements and moral support for individual employees who are keen to promote climate change issues within the organisation. Such leadership does not necessarily result in significant costs but it gradually builds a supportive organisational culture where climate change issues are considered important:

> *"And my boss actually asked me to go along to that (Greenhouse) conference, so he's obviously interested as well." (r10)*

In many instances, climate change and climate change adaptation rose on the agenda of an organisation due to a single senior staff or board member promoting the issue. There are many examples where individual senior management 'champions' were the main trigger for climate change planning and action:

> *"There's a former board member of ours […] and she's interested in this issue […] she championed the issue here." (r67)*

Throughout the interviews with CSOs (and some PCPs), it became apparent that the organisational adaptive capacity relied to a large extent on the motivation, creativity and conviction of one individual with significant decision-making powers within the organisation. This also means that the departure of a climate change champion from an organisation can lead to a breakdown of its climate change work, if the issue hasn't yet been integrated into organisational planning processes. As in the example cited above, however, champions can also leave the organisation with a climate change legacy, setting the path for future activities on the issue even once the individual has left the organisation.

6.3 Supporting adaptation planning

The interviews provided insights into the extent to which CSOs were currently engaged in adaptation planning and implementation[4]. Many CSOs had processes in place for climate-related emergencies,

[4] It should be noted that the question of how organisations can be enabled to make practical progress on adaptation lies at the centre of the *VCCCAR Implementing Adaptation* project. This question will be explored

such as heatwaves and bushfires, where the state government issued warnings and additional information on the development of hazards. Such alerts promoted communication and action among CSOs, as well as between CSOs and their clients. While these processes were important to protect lives and assets during acute events, most of the activities seemed to be triggered only by actual emergencies. The majority of respondents talked about a lack of long-term planning with regard to climate change and the fact that most climate change responses were reactive, focusing on responses after climatic events and other natural disasters.

> *"I'd say […] it's more of a responsive thing. You know if something happens, then we deal with it as best we can at the time." (r6)*

> *"That talks to the nature of our involvement in that area, around those critical incidents, like responding to critical heat waves or bush fires […] there is not terribly much on the pre-emptive side." (r8)*

Despite the increasing evidence of the causes and impacts of climate change on health and well-being discussed in the academic literature (see section 4.2), many CSO respondents felt that it was challenging to motivate adaptation action within the primary health and community welfare sector because it remained difficult for organisations to link extreme weather events to climate change. As long as this link wasn't clearly established and the sector was made aware of the connections, it would remain difficult to engage individuals on adaptation:

> "The challenge is because, I guess if you want to say authoritatively, it's hard to pin down specific events to climate change as such. Like bushfires and heatwaves have been happening forever, and all these sorts of things. […] So the challenge is to kind of then, to motivate action on climate change." (r8)

Some organisations within the sector were investigating whether it was worthwhile to have particular priorities around climate change in terms of organisational operations and service delivery. Two schools of thought seemed to exist. On the one hand, there were those organisations who promoted developing a specific priority area addressing climate change, while, on the other hand, others suggested embedding climate change adaptation into all existing priority areas. These approaches did not seem mutually exclusive, and often one approach led to the other:

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further during the next phase of the research, where adaptation planning and decision-support tools will be implemented in various organisational contexts.

"We sort of started off with looking at how we could adapt our own building to climate change in terms of things like reducing our electricity usage and things like that. And then that led into us looking at things more broadly and we have actually ended up incorporating climate change into almost all of our other priority areas." (r67)

Like the respondent above, a number of CSOs recognised the societal, structural and systematic issues that affected vulnerable people (for example, low-income groups); that these issues were going to be exacerbated by climate change impacts; and that it may not be appropriate to address these independently as yet another separate organisational priority. Many participants commented that integration and mainstreaming of adaptation was the approach most suitable for the primary health and community welfare sector and that *"linkages could be made between strategic priorities, service design and delivery with broader variability and sustainability issues" (r9).*

Many CSO respondents stated that their organisations would like to be engaged in projects with other CSOs to develop their own capacity to respond to and plan for climate change impacts. Participating in networks and active collaboration were considered instrumental in increasing adaptive capacity within an organisation and across the whole sector:

"I'd like to see us having some good long term project running with partnerships with other organisations, for example […] with mental health and disability [and] disadvantaged groups in terms of climate change, like women." (r67)

Some strong partnerships already existed among CSOs to support adaptation. For example, some CSOs talked about strong linkages with non-governmental environmental organisations or with primary care partnerships (PCPs). In the context of some PCPs that were particularly active on climate change adaptation, the PCP was considered an important and valuable network, with high potential for facilitating lasting change towards adaptation in the respective catchment.

CSOs also gave ample evidence about collaborating with research organisations, often through regularly liaising with individual researchers. Of those not involved in any form of research collaboration, many organisations conducted their own in-house research or were keen to collaborate with researchers provided their staff capacity and resourcing allowed it. Many CSOs stated that the VCCCAR Implementing Adaptation research project filled an existing gap and had already shown to be valuable in promoting thought and action around adaptation among CSOs. Several interviewees highlighted that participating in an interview had provided an opportunity to think about adaptation.

Of similar use were partnerships with fire authorities and police departments entertained by some CSOs, which assisted in the monitoring of vulnerable people in emergency situations, including bushfires and heatwaves.

It is important to note that for partnerships and networks to be considered of value to CSOs, these didn't need to be formalised. The use of both informal and formal networks was considered supportive of adaptation action in the primary health and community welfare sector, and some interviewees felt they had at least some organisational capacity to address adaptation *"just because we've got these informal networks" (r9).*

Some CSOs had developed partnerships with private corporations such as banks and energy companies, to collaborate on projects that addressed issues such as energy affordability and energy efficiency, and increasingly also climate change adaptation. Such partnerships required significant time commitment. In many instances limited internal capacity and resources inhibited cross-sectoral collaboration efforts:

Some CSOs felt that many organisations in the primary health and community welfare sector and in other sectors were working independently in silos, without creating meaningful partnerships that would be useful to gain traction on addressing climate impacts:

> *"Everyone's sort of talking separately within the organisations and haven't [sic] really formed many meaningful partnerships yet." (r67)*

7 PCPs: Specific themes emerging from the interviews

The analysis of PCP interview data highlighted the uniqueness of the PCPs' functions and character within the primary health and community welfare sector. As described above (section 1.3, p. 13, and section 2.2, p.21), PCPs are not organisations *per se* but, as the name suggests, facilitated partnerships of organisations providing a variety of primary health and community services. In addition to the common themes discussed above, a range of issues related to the unique character of PCPs were identified during interviews.

Although calls for dedicated funding and a stronger policy framework for climate change adaption were common across the PCPs, individual perceptions regarding specific adaptation needs varied significantly. The following discussion aims to provide a more nuanced overview of key issues raised among PCPs.

7.1 Structural constraints for PCPs

In line with comments made regarding existing strategic priorities for PCPs (as discussed in section 8.1), several participants talked about the fact that climate change was not explicitly stated in departmental guidance on PCP priorities, that it was not considered a deliverable, and that it was not specifically funded by the DoH. Consequently, these respondents felt that they were not responsible for, nor in a position to, respond to climate change impacts as they were not given any resources to do so. Because there was little incentive to focus effort on climate change adaptation, it was merely an additional consideration on the already stretched agenda of PCPs:

> *"The government funding priorities are along the health promotion priorities […] and climate change doesn't get a guernsey, so you know […] climate change isn't given that same priority within the way in which PCPs are funded" (r37)*

Some interviewees, particularly those from rural areas, voiced their general concern over funding criteria associated with government-funded agencies, including those that applied to PCPs. The main point of critique was that some criteria were defined based on population metrics (e.g. total population, population density). For rural and semi-rural areas that were often most directly affected by climatic impacts, funding criteria based on population statistics had resulted in less-than-adequate funding to support adaptation in the sector.

> *"It's all about that centralisation of services, and because we've got such a broad area and a low population mass […] a lot of services look at [your] serviced population base, without taking into account our regional, rural, geographic circumstances." (r64)*

In response to existing criteria, PCPs in rural areas had to develop a more centralised service system. Many of them stated that they were unable to provide adequate services to their agencies even when funds were made available (e.g. in the aftermath of an extreme weather event), and that this was due to funding being restricted by overly prescriptive criteria.

> *"I would say things are reactive and you have these expectations put on you from the Department, but on the other hand you can find yourself in situations where there's all these dollars being thrown at you and that becomes problematic in that you have to spend them according to certain criteria and the might arrive too late after the case so I have to now [fit] criteria to make it of any real value to you." (r36)*

Climate change adaptation and responding to extreme weather events were areas where more flexible funding was needed to respond adequately and efficiently to individual and organisational needs. Some PCPs suggested that funding structures be altered to give PCPs greater local decision-making power over the use of funds, particularly for issues associated with climate change, including mental health services.

The quotes above also point to issues with regard to time lags in the systems that mean that funding cannot be made available quickly enough. One suggestion to overcome this problem was to devise mechanisms for holding some funding locally and allow for local decision-making regarding the spending of such 'local adaptation funds'. This seemed to be particularly relevant for rural PCPs working on indirect impacts of climate change:

> *"Funds [need] to be held locally for mental health services, not held in major centres that are supposed to service our region. That [is] what I would do, because then the decisions would be made locally. The clinicians would be based here and they'd be enough staff to do, with the money that's, it's not smoke and mirrors about what actually gets delivered here." (r64)*

Changes to existing funding schemes were discussed by PCP interviewees in relation to larger structural changes underway at the national scale. There was a perception among some (but not all) PCP interviewees that the National Health Reform, and in particular the development of the Medicare Locals, may challenge the role of PCPs and even call the existence of PCPs into question. In comparison with the newly established Medicare Locals, PCP funding was seen to be very limited and restrictive. With the Medicare Local roll-out still in progress, some participants said they were unsure about how these changes to the primary health and community welfare sector would affect their funding structure and operations.

7.2 Resource constraints among partner agencies

PCPs aren't unique in experiencing funding and capacity constraints with regard to addressing existing deliverables and priorities and emerging agendas such as climate change adaptation. Interviewees stated that the funding constraints experienced by PCPs were a reflection of the substantial funding limitations in their partner agencies.

> *["Most needed are] funding, resource allocation and a policy framework which will help agencies to make decisions about how they respond or don't respond. (r11)*

The funding constraints made it difficult for partner agencies to make progress on emerging issue such as climate change adaptation. Agency funding constraints were primarily associated with the current political climate and recent government cuts, combined with increasing responsibilities. Given the relatively recent appearance of climate change adaptation on the primary health care agenda, adaptation was perceived as one of the first issues to be sacrificed when funding cuts are experienced:

> *"[T]he health promotion people who are the main group that do this sort of [climate change adaptation] work would all have [had] their counter funding cut under the current government, so nobody's got any free space to play or to go beyond […] They'll be dealing with chronic disease and nothing beyond it." (r65)*

Funding cuts led to a gradual demotivation of staff and perpetuated existing capacity gaps within the sector as partner agency staff were put under increasing strain. The following statement encapsulates this view:

> *"Local government and all community services under the current state of government are suffering and they're lucky to be able to deliver the services they are currently expected to provide. […] People are feeling a bit demotivated because of the current […] government cuts […] They cut out health promotion dollars […] and that's where a lot of work is done around climate change." (r56)*

In essence, the PCPs' ability to facilitate climate change adaptation processes relied to a significant extent on the level of resourcing among partner agencies, which in turn influences how readily new strategic priorities such as adaptation are accepted among partner agencies. The more severe the funding constraints among agencies, the less prepared and able they seemed to be to integrate climate change adaptation and other emerging issues into their operations.

7.3 Limited policy guidance on adaptation

In this context, competing priorities mandated by the Department of Health were also brought up as a barrier to focus more effort on adaptation. Among the PCP representatives interviewed, departmental policy guidelines for PCPs were considered to be either:

- Too prescriptive and therefore excluding of adaptation, or
- Too broad, meaning that adaptation could theoretically be included in priorities and projects, but given available resources and organisational capacity it was impossible to consider adaptation as an additional issue.

'Policy guidance is too narrow'

Supporters of this view (i.e. that existing guidelines were too prescriptive) stated that if they wanted to include adaptation in their agenda, it had to be done in an inventive, creative manner in order to gain departmental approval and ongoing funding – and a small minority of PCPs had successfully managed to do so. They seemed to have achieved this through increased efforts in research and by reporting climate change efforts as related to one of the existing priorities. This enabled them to draw links between deliverables defined by the Department of Health and climate change adaptation outcomes.

The majority of respondents however found the additional effort required for considering climate change impacts and adaptation extremely difficult within the current policy context – a view that is expressed in the following statement:

> "I mean how do you do climate change work if it's not recognised anywhere?" (r55)

A commonly held view was that it was too difficult to justify the inclusion of climate change in a PCP strategic plan, yet such justification was required by the Department. The potential gain to the PCP and its agencies was not considered worth the additional work:

> *"They [Department of Health] are very, very, very tight about what they want to see in the Municipal Public Health Plan and how they want it to happen. If I was to put something in our strategic plan around that [climate change], I'd have to have very, very clear data and reasoning […]. The Department of Health would question why I had it in there." (r12)*

Others said that including environmental health and climate change adaptation concerns in the primary health and community welfare sector was simply not enough of a priority from the point of view of the PCP and its partner agencies. For these PCPs, adaptation only had the status of a 'nice to have', but it paled in importance in comparison with more pressing priorities associated with core PCP topics and tasks.

"[Climate change adaptation] is not in our mandated priorities and hasn't come up, so I can't just put it in [our strategic plan]." (r12)

'Policy guidance is not specific enough'

Among those that took the alternative view (i.e. that current PCP policy guidelines were too broad), the dominant argument was that current Victorian Government policy statements that referred to climate change issues and climate change adaptation were rather unspecific. As a consequence, the PCPs and their associated agencies were mostly unsure of how climate change and these statements directly affected them.

"[For some climate change is] 'just too big, too hard, don't know where I fit', and then [they] move onto the next issue." (r.11)

Often, PCP respondents took the view that existing policy guidance didn't necessarily restrict nor support adaptation action in the primary health and community welfare sector, but that the broad nature of existing policies caused stakeholders to disengage because they were not meaningful to individual organisations. There was a sense of being defeated by the complexity of adaptation, combined with the lack of guidance. What was needed to harness internal organisational capacity for adaptation was concrete advice and strategic guidance on how to plan for and respond to climate change:

"We could do a lot more around climate change adaptability, but only if the Department […] provides something a bit more concrete, a bit more strategic and a bit more pre-planned, and increases the member commitment for the area." (r37)

7.4 Leadership on adaptation

Many PCP representatives emphasised that the nature of PCPs as 'bridging' or 'umbrella' entities ideally placed to drive adaptation in the primary health and community services sector through awareness raising and facilitating dialogue. The study showed, however, that only a small number of PCPs had made substantial progress with adaptation, in partnership with their member agencies. These partnerships did not see funding constraints or the current policy context as significant barriers to implementing adaptation. Rather, they utilised the existing institutional space to gradually promote the adaptation agenda among their agencies, using creative and innovative solutions.

Leadership, personalities, and innovation

There are some leadership characteristics that stood out with regard to how the PCPs leading on adaptation were able to make progress. First of all, individual leadership was a key ingredient for successfully developing support for adaptation among the member agency base. In the cases studies,

there was clear indication that an individual within or associated with the PCP were central to the success with adaptation. Given the institutional context described above, it seemed to take certain 'leadership personalities' to be able to make progress with adaptation in the context of structural, financial and cultural obstacles at the PCP and member agency level.

For CSOs a supportive senior management structure was deemed important for successful adaptation (section 6.2). For PCPs, due to their typically lean organisational structure, the role of the individuals at the helm of the organisation stood out as the single most important aspect of adaptation leadership. It appeared that for PCPs to be able to work on emerging agendas, such as adaptation, it was essential that the PCP Executive Officer provided the impetus for raising awareness on the risks associated with climate change impacts and thereby gradually develop support for adaptation from the member agency base. Where climate change adaptation had become a priority for a PCP, this took careful agenda setting and a process of ongoing facilitated deliberation among member agencies over the course of two or three years.

This suggests that conviction, commitment and persistence are important leadership traits that can enable adaptation to become embedded in PCPs. The interview data highlights that, for adaptation or any other new agendas to become successfully embedded among partner agencies, these leadership traits need to exist and be developed within one or two individuals in decision-making roles within the PCP.

In addition, the PCPs used funding opportunities in innovative and smart ways to make progress on adaptation over the course of several years. While many PCPs lamented the lack of funding for adaptation, others showed that they had been able to fund adaptation pilot projects and initial adaptation activities by using existing funding in innovative, creative ways and by directly engaging with leaders in the field of adaptation.

Leadership from below? Member agencies as drivers or barriers to adaptation

Given the nature of PCPs as a network partnership of primary health care agencies, the organisational program of PCPs is driven to a significant extent by member agencies and partners within the catchment. PCP members, in turn, work directly with clients and have a role in responding to community needs.

Several respondents thought that because their partner agencies' members did not identify climate change adaptation as an issue of primary concern, the PCP was unable to include adaptation within their priorities. Some PCPs feel that the lack of attention to climate change adaptation among their members was largely driven by existing organisational cultures and value systems that manifested in lack of leadership from executives and boards that set the organisational agenda. A commonly held view was that as long as PCP members were not calling for climate change adaptation from the bottom up, the PCP was not in a position to prioritise adaptation:

> *"We are obviously mandated by the Department of Health […] We are also driven by need[s] locally as well, and [climate change adaptation] hasn't come up.*

[…] We did extensive interviews with our member agencies on what they saw as upcoming priorities, […] and [climate change] wasn't mentioned at all." (r12)

"[Climate change] isn't identified as a priority by the partners, and really I've got to do what they tell me." (r49)

"Are the members calling for it? No." (r37)

In addition, respondents said that the concern of their member agencies for adaptation decreased exponentially over time after an extreme climatic event. Member agencies tended to forget the severity of an impact once it had passed and felt little urgency to prepare themselves until another event occurred. In PCPs that were strongly driven by member needs, respondents stated that member agencies reported a lack of interest in climate change issues during times when significant climate related impacts were absent:

"It used to be a priority issue of this PCP but it got dropped in the last twelve months because, I can only assume it was that once the drought stopped there's probably less of a heightened risk or perceived risk on the effects of climate change." (r56)

Some interviewees talked about member agencies having a strong chronic disease focus and not having climate change adaptation on their agenda because it was considered part of early intervention, proactive work on health promotion that wasn't part of their core objective.

"It's hard because […] I don't think it's [climate change adaptation] on the agenda and [for] a lot of the partners of the PCP there's a very strong health focus and treatment focus as opposed to early intervention and health promotion focus." (r49)

Those agencies with closer ties to the wider primary health and community welfare sector and local government were reported to better understand the indirect and direct impacts of climate change. These agencies were considered to be relatively more motivated to proactively address climate change adaptation.

In line with the above views, some interviewees thought that the key for progressing adaptation within the primary health and community welfare sector was to better inform partner agencies and generate demand for adaptation from the bottom up, starting at the community level. If member agencies demanded climate change to be addressed, PCPs would find a way to include adaptation in their agenda, despite a lack of resources. One participant highlighted that their PCP already used their member agencies to *"gain traction on any issue" (r37, p.20)*, and that if a member agency stated that

climate change adaptation was of concern, the PCP *"would run with that very actively" (r37)*. However, the majority of participants felt that such bottom-up demand for adaptation did not exist at present and that their overarching goal must be to support partner agencies in delivering quality services.

> *"I mean we work for our partners […] to support their clients. […] It's about it needing to be what they need, we need to support their work and what their priorities are and what matters most to them at the time." (r65)*

> *"If it came through on a needs analysis, well then you know, we'd be saying to the Department: 'Well I'm sorry […] but we're doing this.' […] We'd probably […], you know, tie in." (r25)*

8 Possibilities for adaptation in the primary health and community welfare sector

While a small number of CSOs and PCPs were actively working on climate change adaptation planning as an important strategic and programmatic area, the majority of them had not considered adaptation in their work. Multiple drivers and barriers were highlighted throughout the interviews, which either enabled or constrained adaptation within the wider primary health and community welfare sector, as discussed above.

In this section we present some possibilities for climate change adaptation in the primary health and community welfare sector in Victoria, drawing on key themes from the literature and from the interviews. These are not recommendations *per se* but possibilities for action in a transformation towards a primary health and community welfare sector better enabled to engage with climate change adaptation.

8.1 Strategies for building adaptive capacity

Embedding adaptation in strategic planning

Contrasting perspectives existed among respondents on whether adaptation should be treated as a standalone priority, independent of other priority areas, or embedded across all priorities of a CSO or a PCP[5]. A minority of organisations had already set climate change adaptation as a priority area. However, many respondents thought that the most appropriate response to climate change impacts was the inclusion of adaptation considerations within all strategic priority and core business areas, given that climate impacts would affect most if not all services and exacerbate existing vulnerabilities among service recipients.

Some respondents suggested a dual approach, where adaptation would become a strategic priority, while also being integrated in planning and decision-making across the organisation. Such a dual approach would have the greatest impact at the organisational level and also influence partner agencies. Given that many organisations to date have no mechanisms for considering adaptation in their planning and operations, the main opportunity in this regard is to ensure that climate change impacts and adaptation are considered in a systematic manner during strategic planning processes, irrespective of which of the above approaches is chosen in the end.

[5] With regard to PCPs, it is important to note that the interviews were conducted during a period of transition and preparation for the new four-year planning cycle (see section 2.2).

Providing easier access to practical adaptation guidance

Climate change adaptation is unlikely to evolve into a priority for primary health and community welfare organisations unless more targeted information and guidance on climate change impacts and potential adaptation responses become available and accessible. Respondents repeatedly asked for local information on the specific links between climate impacts and the associated social implications.

Many participants stated that provision of a guidance framework would help them to increase their adaptive capacity and ability to plan for climate change impacts, because they did not have the time and resources to develop and test adaptation guidance themselves. Many organisations were keen to learn from 'tried and tested' examples of adaptation, e.g. from experienced organisations, to avoid wasting time and resources without certainty regarding outcomes.

Developing in-house adaptation champions

As discussed above, in the few cases where adaptation had been made an organisational priority, interviewees commented that there was a champion within their organisation *"with a personal passion" (r56)* for addressing climate impacts, and that these individuals had a strong influence on whether or not adaptation was considered important for the organisation. This individual needed to be positioned at a middle management level or above in order to have the ability to drive the adaptation agenda within the organisation.

Often individuals at officer level, who are aware of climate change and the associated direct and indirect impacts on health and community welfare, are motivated to consider adaptation wherever possible to the extent of their capacity. In some cases, officer-level staff have been successful in gradually moving organisations to develop innovative projects with an adaptation focus that are aligned with departmental funding criteria. However, interviewees employed in such roles felt that, ultimately, it was support from management and above that had enabled their individual achievements.

This suggests that a productive adaptation option for consideration across the sector is to support the development of 'adaptation champions' within organisations. Such a process could be facilitated by developing a state-wide network of adaptation practitioners, focusing on the level of individual staff members. Such a network would provide opportunities for upskilling, sharing, and problem solving on issues related to climate change adaptation, for those staff most dedicated to the issue. The findings of this study suggest that a combination of junior or mid-level and senior staff would need to be involved such networks.

Promoting PCPs as platforms for adaptation action

Among PCP participants there was consensus that PCPs could become a suitable platform for promoting adaptation in the primary health and community welfare sector. This view was endorsed by some of the smaller CSOs, although many CSOs primarily looked to the large CSOs for leadership on adaptation. For smaller primary health and community welfare organisations already participating in PCPs, these partnerships could act to guide partner agencies through emerging sector-wide issues,

including adaptation. Some participants stated that given that the PCPs' operating environment was defined by guidance from the state government and by cyclical strategic planning processes, adaptation could gradually be applied to a range of sector-wide health priorities. This would enable PCPs to deliver better adaptation planning and better integration of adaptation actions across the sector.

8.2 Community engagement and networking on adaptation

Many participants commented on the power of communities in driving whatever action they felt was important and relevant within their local or regional area. In some cases, changes in community perception and specific community concerns regarding climate change impacts seemed to trigger bottom-up action among CSOs and, ultimately, also PCPs. An example given was a community forum organised as a means to address mental health issues related to climate change impacts. In the region of concern, entire communities had been affected by extreme events. The sharing of grief and concerns in community fora helped to increase community cohesion and collaboration among primary health and community welfare organisations.

Participants commented that the value of community networks was often not realised among CSOs and PCPs, and that climate change and its associated impacts could be better used as opportunities and additional motivation for building community cohesion. CSOs could be supported to play a lead role in the process of harnessing the community-level benefits of engaging in adaptation planning and implementation.

Several PCP respondents stated that an inter-agency approach to climate change adaptation would be most appropriate, as most agencies are resource constrained. A service provider network to collaborate on planning for climate change impacts was suggested, to develop pooled resources for adaptation. Due to their existing coordinating role, PCPs were considered well placed to facilitate such inter-agency work. Developing a 'service provider network' with the involvement of the local PCP to provide better community support could be a powerful form of fostering adaptation in the sector.

8.3 Providing and promoting safe and well-adapted housing

Other suggestions for CSOs to better and more directly engage with community members was to provide 'safe community shelters' that community members could access during extreme weather events. Already, many neighbourhood and community houses were visited during heatwaves by community members in search of cool spaces.

Such safe community shelters could become hubs of information and activity on climate change adaptation, where community members could engage with CSO staff on adaptation planning and implementation, not only during extreme weather events but also during 'calm' times.

In relation to providing safe shelter during acute events, the primary health and community service sector could also engage in advocacy for influencing housing developments at the proposal stage, to

cater for the increasing needs of vulnerable people under the direct and indirect impacts of climate change.

Various peak bodies already engaged in advocacy for housing policy could further strengthen their arguments by drawing specifically on latest information on future climate change impacts. The findings of this study suggest that an increased understanding of the socio-economic impacts of climate change and the practical experiences of many CSOs would support a concerted push for stricter regulation for new and existing housing stock in order to reduce climate change vulnerabilities.

8.4 Moving from emergency response to proactive adaptation

The majority of participants held the view that any visible adaptation effort amongst CSOs and PCPs is currently focused on emergency response and recovery. When asked about the state of adaptation in the primary health and community welfare sector, 87% of interviewees discussed 'emergency response' and associated terms (emergency management, reactive response, recovery) instead of talking explicitly about climate change adaptation.

Across the sector, emergency responses could be taken greater advantage of as triggers for moving into preparedness and strategic adaptation planning work. There is some evidence of such transformation in some rural areas, where interview participants noted *"spin-off" (r64)* benefits from prolonged drought, extensive flooding, bushfires and other extreme weather events, which have already resulted in stronger community cohesion and improved collaboration among the network of health service providers.

Participants suggested that primary health and community service organisations tended to be better able to plan or prepare for climatic events if the same impacts had been historically experienced within the catchment area. Conversely, organisations that had not experienced severe climatic or weather related events were reported to be less aware and less able to consider climate change adaptation as a requirement for their organisation.

However, this approach of 'planning for what is known', based on actual experience of climate-related events, may be a somewhat short-sighted strategy when taking into account that that climate related events are expected to become more frequent and more intense with climate change.

Several respondents talked about the heightened *"sense of urgency" (r13, r49, r11)* after a climate-related event took place, which rapidly decreased with the passing of time. Short term memory and constantly shifting priorities were said to decrease awareness for climate change adaptation after climate-related events. Some participants felt this was the core issue that impeded strategic, preventative adaptation planning, and that emergency management had become a *"band-aid treatment" (r38)* within the sector.

Some participants stated that although initial responses to climatic events being entirely reactive, there is a window of opportunity after events that needs to be better utilised to turn adaptation into a *"way of doing business" (r64)*. These sentiments suggest that, rather than focusing on forcing a shift from

emergency management to adaptation, part of the solution could be to develop mechanisms for enabling systematic and sustained learning for adaptation in the aftermath of extreme weather events. These systematic efforts could consist of an integrated program of action that allowed for the sharing of experiences, problem solving, identification of gaps, and reflexive learning across the sector. More research is necessary to determine possible learning mechanisms for adaptation and how these can best be built into existing policies and processes.

9 Conclusions

Our review has shown that information on the observed and potential climate change impacts on human health and community well-being are increasingly being documented, both for the Australian context and internationally. A number of recent review papers and case studies document the physical and mental health consequences of extreme weather events, in particular with regard to heatwaves and floods. Research and knowledge gaps do exist, however, especially with regard to the indirect socio-economic and psychosocial effects of climate change and their regional manifestations.

Primary care partnerships and community service organisations directly serve individuals and communities on a regular basis. This makes them ideally suited to become important actors in climate change adaptation. The growing evidence and knowledge base for adaptation in the primary health and community welfare sector suggests that there is plenty of scope for primary health care and community service organisations to consider climate change impacts more systematically in their work. An important adaptation theme particularly close to the main objectives of the sector is identifying individuals and groups most vulnerable to climate change and providing support prior, during and after climatic events. Promoting climate justice and building community resilience are important high-level adaptation strategies that many primary health and community welfare organisations are well placed to contribute to in their local areas.

While the high-level scope for climate change adaptation in the sector seems increasingly clear, much less is still known about what kind of practical measures organisations should take to ensure more just and more equitable adaptation. It is evident from the review that the sector has limited capacity to adapt to climate change, and that many organisations are already strained for resources. Sector-wide efforts, supported by government initiatives, for building institutions that enable adaptation and improving existing systems to address climate change will be important strategies to increase adaptive capacity.

9.1 PCPs and climate change adaptation

The interviews conducted with PCPs across Victoria suggest that the majority of PCPs have not yet systematically considered climate change impacts and adaptation in their work. A small number of PCPs continue to lead in this space, by adopting adaptation as a key organisational priority and/or by developing their internal capacity for adaptation through specific projects and activities.

A number of respondents were of the opinion that climate change adaptation was not an issue that was supported as a priority by either the Department of Health or their partner agencies. Because PCPs were largely driven by these two forces, they argued that it was not currently possible to put further effort into climate change adaptation, seeing that there was no mandate from the funding body or from the bottom-up.

In most PCPs, climate change adaptation seemed to be predominantly discussed and considered within the context of emergency management and response. Small windows of opportunity existed in the aftermath of extreme weather events to consider climate change as an emerging priority for the primary health and community welfare sector. Exceptions to this were rural PCPs where their partner agencies had experienced the individual and community level impacts of drought. In some instances this experience had led to a change in strategy and a realisation that such impacts had become a core part of an organisation's business.

PCPs across Victoria reported to be chronically under-resourced to fulfil the range of responsibilities they had. This made it difficult to take additional themes, such as climate change adaptation on board even where this was supported and warranted because of recent climatic events. Resource constraints were reported to exist not only among PCPs but also among their partner agencies.

Nevertheless, many PCP respondents considered climate change adaptation to be an increasingly important issue that needed to be addressed throughout the primary health and community welfare sector. Many respondents thought that PCPs, if adequately resourced, could play a key facilitation role at the local and regional scales to increase awareness and capacity about climate change impacts on individual and community health.

While the emphasis of this report was on identifying adaptation needs in the sector, the interview data suggests that a number of strategies could be employed to help increase the profile of climate change adaptation among PCPs and within the wider primary health and community welfare sector, including making adaptation a strategic priority across the sector, improved access to practical guidance on adaptation, building climate change adaptation from the community level upwards, and supporting climate change adaptation champions and those willing to show leadership.

9.2 CSOs and climate change adaptation

In the context of climate change adaptation, CSOs play an interesting role, because their primary focus is on identifying, better understanding and, importantly, addressing social vulnerabilities and various forms of social and economic disadvantage. This places CSOs in a unique position to consider the social implications of climate change in their advocacy and client-based work. In the empirical study, social justice and equity considerations stood out as a key trigger for considering climate change in CSO's strategies and operations.

Although the research covered only a small subset of CSOs in Victoria, the interview data suggests that climate change adaptation is not a topic that is currently well embedded in CSOs. Below the surface, however, differences emerged with regard to the framing of this issue, and it became apparent that in many CSOs, both large and small, climate change issues were already linked to existing agendas and areas of work. Many of the CSOs interviewed seemed to have a good understanding of the indirect impacts that climate change has on communities and individuals. Much of the interview data pointed to differentiated impacts, including disproportionate effects on people with disabilities, the role of social isolation in the context of climate change, and regionalised and gendered impacts.

The interviews revealed a range of views on the availability and accessibility of climate change information. While some questioned the usefulness of additional information, the majority of respondents identified a lack of specific information tailored to key areas of work within the primary health and community welfare sector.

A significant proportion of the interviews was spent on discussing the sector architecture and the roles that government could play in fostering adaptation among CSOs. While funding constraints were seen as a major obstacle to engendering adaptation, many respondents stated clearly that further policy guidance on how to tackle adaptation was needed. At an organisational level, senior management buy-in and leadership was considered crucial for making progress on adaptation, as was participating in networks.

References

Adger, N. W. (2003). Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography*, *79*(4), 387–404.

Adger, N. W., Arnell, N., & Tompkins, E. L. (2005). Successful adaptation to climate change across scales. *Global Environmental Change Part A*, *15*(2), 77–86. doi:10.1016/j.gloenvcha.2004.12.005

Adger, N. W., & Kelly, P. M. (1999). Social Vulnerability to Climate Change and the Architecture of Entitlements. *Mitigation and Adaptation Strategies for Global Change*, *4*(3), 253–266. doi:10.1023/a:1009601904210

Adger, W. N. (2000). Social and ecological resilience: are they related? *Progress in Human Geography*, *24*(3), 347–364. doi:10.1191/030913200701540465

Alston, M., & Kent, J. (2004). Coping with a Crisis: Human Services in Times of Drought. *Rural Society*, *14*, 214–227.

Anderson, C. A., & Anderson, K. B. (1998). Temperature and aggression: paradox, controversy, and a (fairly) clear picture. In R. Geen & E. Donnerstein (Eds.), *Human aggression: theories, research and implications for policy* (pp. 247–298). San Diego: Academic Press. Retrieved from http://www.psychology.iastate.edu/faculty/caa/abstracts/1995- 1999/98AA.html

Anderson, D. (2009). Enduring drought then coping with climate change: Lived experience and local resolve in rural mental health. *Rural Society*, *19*(4), 340–352. doi:10.5172/rsj.351.19.4.340

Argyris, C., & Schön, D. A. (1978). *Organizational Learning: A Theory of Action Perspective* (First.). United Kingdom: Addison-Wesley Publishing Co.

Armstrong, F. (2012). *Submission to the Productivity Commission Inquiry into Barriers to Effective Climate Change Adaptation*. Melbourne. Retrieved from http://www.pc.gov.au/__data/assets/pdf_file/0010/117469/subdr109.pdf

Australian Government. (2006). *Climate change impacts and risk management: a guide for business and government* (p. 76). Canberra. Retrieved from http://www.climatechange.gov.au/what-you-can-do/local-government/~/media/publications/local-govt/risk-management.pdf

Australian Government. (2007). *National Climate Change Adaptation Framework* (p. 27). Canberra.

Australian Government. (2010a). *Adapting to Climate Change in Australia: An Australian Government Position Paper* (p. 16). Canberra. Retrieved from http://www.climatechange.gov.au/~/media/publications/adaptation/gov-adapt-climate-change-position-paper.pdf

Australian Government. (2010b). *Medicare Locals - Discussion Paper on Governance and Functions* (p. 14). Canberra. Retrieved from

http://www.yourhealth.gov.au/internet/yourHealth/publishing.nsf/Content/MedicareLocalsDiscussionPaper/$FILE/Discussion Paper.pdf

Australian Government. (2011a). *Barriers to Effective Climate Change Adaptation: Productivity Commission Issues Paper*. Canberra. Retrieved from http://www.pc.gov.au/__data/assets/pdf_file/0016/113533/climate-adaptation-issues.pdf

Australian Government. (2011b). *National Health Reform: Progress and Delivery* (p. 68). Canberra. Retrieved from www.yourhealth.gov.au

Australian Government. (2012a). *Barriers to Effective Climate Change Adaptation: Productivity Commission Draft Report* (p. 293). Canberra. Retrieved from http://www.pc.gov.au/__data/assets/pdf_file/0007/116539/climate-change-adaptation-draft-report.pdf

Australian Government. (2012b). Preparation for the High Risk Season. Australian Government Department of Health and Ageing. Retrieved March 5, 2013, from http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-mailfax-2012-1010.htm

Australian Government. (2013a). Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education. *DIICCSRTE*. Retrieved from http://www.climatechange.gov.au/climate-change/adapting-climate-change

Australian Government. (2013b). Productivity Commission: Barriers to Effective Adaptation. *DIICCSRTE*. Retrieved from http://www.pc.gov.au/projects/inquiry/climate-change-adaptation

Australian Government. (2013c). *Australian Government response to the Productivity Commission report : Barriers to Effective Climate Change Adaptation* (p. 15). Canberra.

Australian Government. (2013d). *Climate Adaptation Outlook: A Proposed National Adaptation Assessment Framework* (p. 2100). Canberra.

Australian Government. (2013e). National Disability Insurance Scheme. *NDIS*. Retrieved from http://www.ndis.gov.au/

Bajayo, R. (2012). Building community resilience to climate change through public health planning. *Health Promotion Journal of Australia*, *23*(1), 30–36. Retrieved from http://www.publish.csiro.au/paper/HE12030

Ballard, D. (2005). Using learning processes to promote change for sustainable development. *Action Research*, *3*(2), 135–156. doi:10.1177/1476750305052138

Barnett, J. (2009). Justice and adaptation to climate change. *Climate change and social justice* (pp. 131–143). Melbourne: Melbourne University Press.

Beatley, T. B. R. (ed. . (1998). The vision of sustainable communities. In R. Burby (Ed.), *Cooperating with Nature: confronting natural hazards with land use planning for sustainable communities* (p. 233ff.). Washington D.C.: Joseph Henry Press.

Berkhout, F., Hertin, J., & Gann, D. M. (2006). Learning to Adapt: Organisational Adaptation to Climate Change Impacts. *Climatic Change*, *78*(1), 135–156. doi:10.1007/s10584-006-9089-3

Berry, H., Bowen, K., & Kjellstrom, T. (2010). Climate change and mental health: a causal pathways framework. *International Journal of Public Health*, *55*(2), 123–32. doi:10.1007/s00038-009-0112-0

Berry, H., Kelly, B., Hanigan, I., Coates, J., McMichael, A. J., Welsh, J., & Kjellstrom, T. (2008). *Rural mental health impacts of climate change*. Canberra: The Australian National University. Retrieved from http://www.garnautreview.org.au/CA25734E0016A131/WebObj/03-DMentalhealth/$File/03-D Mental health.pdf

Blashki, G., Armstrong, G., Berry, H., Weaver, H. J., Hanna, E. G., Bi, P., Harley, D., et al. (2011). Preparing health services for climate change in Australia. *Asia-Pacific journal of public health / Asia-Pacific Academic Consortium for Public Health*, *23*(2 Suppl), 133S–43. doi:10.1177/1010539510395121

Bowen, K. J., & Friel, S. (2012). Climate change adaptation: where does global health fit in the agenda? *Globalization and health*, *8*(10), 7. doi:10.1186/1744-8603-8-10

Brooke, C., & Kinrade, P. (2006). *Climate Change Impacts in Western Port Report prepared for the Western Port Greenhouse Alliance* (p. 39). Western Port.

Brotherhood of St Laurence. (2012). *Barriers to effective climate change adaptation - Submission to the Productivity Commission inquiry*. Fitzroy: Brotherhood of St Laurence.

Brown, H. L., Proust, K., Spickett, J., & Capon, A. (2011). The potential role of Health Impact Assessment in tackling the complexity of climate change adaptation for health. *Health Promotion Journal of Australia*, *22*(Special Issue), S48. Retrieved from http://search.informit.com.au.ezproxy.lib.rmit.edu.au/documentSummary;dn=076179828708532;res=IELHEA

Bureau of Meteorology, & CSIRO. (2012). *State of the climate 2012*. Canberra. Retrieved from http://www.csiro.au/Outcomes/Climate/Understanding/State-of-the-Climate-2012.aspx

Burton, I., Huq, S., Lim, B., Pilifosova, O., Schipper, E. L., & Lisa, E. (2002). From impacts assessment to adaptation priorities: the shaping of adaptation policy. *Climate Policy*, *2*(2), 145–159. doi:10.3763/cpol.2002.0217

Carroll, B., Morbey, H., Balogh, R., & Araoz, G. (2009). Flooded homes, broken bonds, the meaning of home, psychological processes and their impact on psychological health in a disaster. *Health & Place*, *15*(2), 540–7. doi:10.1016/j.healthplace.2008.08.009

Carthey, J., Chandra, V., & Loosemore, M. (2009). Adapting Australian health facilities to cope with climate-related extreme weather events. *Journal of Facilities Management*, *7*(1), 36–51. doi:10.1108/14725960910929556

Climate and Health Alliance. (2012). Health sector ill-prepared for climate change. *online*. Retrieved January 9, 2013, from http://caha.org.au/health-professionals-and-health-sector-ill-prepared-for-climate-change/

Climate Commission. (2012). *The critical decade: Victorian climate impacts and opportunities* (p. 24). Canberra. Retrieved from http://climatecommission.gov.au/wp-content/uploads/120719_VIC-report-web-version_final.pdf

Cohn, E. G., Rotton, J., Peterson, A. G., & Tarr, D. B. (2004). Temperature, City Size, and the Southern Subculture of Violence: Support for Social Escape/Avoidance (SEA) Theory. *Journal of Applied Social Psychology*, *34*(8), 1652–1674. doi:10.1111/j.1559-1816.2004.tb02792.x

Coleman, J. S. (2000). Social Capital in the Creation of Human Capital. *Knowledge and Social Capital: Foundations and Applications* (pp. 17–41). Chicago: Butterworth-Heinemann. doi:10.1016/B978-0-7506-7222-1.50005-2

Collins, K., & Ison, R. (2009). Jumping off Arnstein's ladder: social learning as a new policy paradigm for climate change adaptation. *Environmental Policy and Governance*, *19*, 358–373. doi:10.1002/eet.523

Commissioner for Environmental Sustainability. (2012). *Climate change Victoria: the science, our people and our state of play*. Melbourne. Retrieved from http://www.swipedigital.com/cfes/

Costello, A., Abbas, M., Allen, A., Ball, S., Bell, S., Bellamy, R., Friel, S., et al. (2009). Managing the health effects of climate change. *Lancet*, *373*(9676), 1693–733. doi:10.1016/S0140-6736(09)60935-1

Dodman, D., & Satterthwaite, D. (2008). Institutional Capacity, Climate Change Adaptation and the Urban Poor. *IDS Bulletin*, *39*(4), 67–74. doi:10.1111/j.1759-5436.2008.tb00478.x

Doherty, T. J., & Clayton, S. (2011). The psychological impacts of global climate change. *The American Psychologist*, *66*(4), 265–76. doi:10.1037/a0023141

Ebi, K. L., Kovats, R. S., & Menne, B. (2006). An Approach for Assessing Human Health Vulnerability and Public Health Interventions to Adapt to Climate Change. *Environmental Health Perspectives*, *114*(12), 1930–1935. doi:10.1289/ehp.8430

Ebi, K. L., & Semenza, J. C. (2008). Community-based adaptation to the health impacts of climate change. *American journal of preventive medicine*, *35*(5), 501–7. doi:10.1016/j.amepre.2008.08.018

Edwards, T., & Wiseman, J. (2009). Community Wellbeing in a Changing Climate : Challenges and Priorities for the Australian Community Sector. *Just Policy*, (50), 80–86.

ESRC Economic and Social Research Council. (2009). *How will climate change affect peope in the UK and how can we best develop an equitable response?* (p. 18). Swindon. Retrieved from http://www.ncvo-vol.org.uk/sites/default/files/UploadedFiles/Quality_Standards/ESRC_climate_change_seminar_report.pdf

Ezzati, M., Lopez, A. D., Rodgers, A., & Murray, C. J. L. (2004). *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors* (Vol. 1, p. 2235). Geneva: World Health Organisation.

Few, R. (2007). Health and climatic hazards: Framing social research on vulnerability, response and adaptation. *Global Environmental Change*, *17*(2), 281–295. doi:10.1016/j.gloenvcha.2006.11.001

Ford, J. D. (2012). Indigenous health and climate change. *American Journal of Public Health*, *102*(7), 1260–6. doi:10.2105/AJPH.2012.300752

Fritze, J., Blashki, G. A., Burke, S., & Wiseman, J. (2008). Hope, despair and transformation: Climate change and the promotion of mental health and wellbeing. *International Journal of Mental Health Systems*, *2*(1), 13. doi:10.1186/1752-4458-2-13

Fritze, J., Williamson, L., & Wiseman, J. (2009). *Community Engagement and Climate Change : Benefits , Challenges and Strategies* (p. 79). Melbourne.

Fritze, J., & Wiseman, J. (2009). Climate justice: key debates, goals and strategies. *Climate change and social justice* (p. 187/211). Melbourne: Melbourne University Press.

Frumkin, H., Hess, J., Luber, G., Malilay, J., & McGeehin, M. (2008). Climate Change: The Public Health Response. *American Journal of Public Health*, *98*(3), 435–445. doi:10.2105/AJPH.2007.119362

Frumkin, H., & McMichael, A. J. (2008). Climate change and public health: thinking, communicating, acting. *American journal of preventive medicine*, *35*(5), 403–10. doi:10.1016/j.amepre.2008.08.019

Fünfgeld, H., & McEvoy, D. (2011). Framing Climate Change Adaptation in Policy and Practice. Melbourne. Retrieved from http://www.vcccar.org.au/files/vcccar/Framing_project_workingpaper1_240611_0.pdf

Fünfgeld, H., Wallis, P., Rance, A., & Millin, S. (2012a). Climate change adaptation capacities and needs in the community and natural resource management sectors: stakeholder workshop discussion paper. Melbourne: Victorian Centre for Climate Change Adaptation Research. Retrieved from http://www.vcccar.org.au/files/vcccar/DiscussionPaper_Sept12.pdf

Fünfgeld, H., Wallis, P., Rance, A., & Millin, S. (2012b). Climate change adaptation priorities for the community and natural resource management sectors: stakeholder workshop summary report. Melbourne: Victorian Centre for Climate Change Adaptation Research. Retrieved from http://www.vcccar.org.au/files/vcccar/Workshop_Summary_Report_121012.pdf

Füssel, H.-M. (2008). Assessing adaptation to the health risks of climate change: what guidance can existing frameworks provide? *International Journal of Environmental Health Research*, *18*(1), 37–63. doi:10.1080/09603120701358416

Gifford, R. (2011). The dragons of inaction: pychological barriers that limit climate change mitigation and adaptation. *The American Psychologist*, *66*(4), 290–302. doi:10.1037/a0023566

Hall, P. A. (1993). Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain. *Comparative Politics*, *25*(3), 275–296.

Hansen, A. L., Bi, P., Nitschke, M., Ryan, P., Pisaniello, D., & Tucker, G. (2008). The Effect of Heatwaves on Mental Health in a Temperate Australian City. *Epidemiology*, *19*(6). Retrieved from http://journals.lww.com/epidem/Fulltext/2008/11001/The_Effect_of_Heatwaves_on_Mental_Health_in_a.259.aspx

Harlan, S. L., Brazel, A. J., Prashad, L., Stefanov, W. L., & Larsen, L. (2006). Neighborhood microclimates and vulnerability to heat stress. *Social Science & Medicine*, *63*(11), 2847–63. doi:10.1016/j.socscimed.2006.07.030

Heazle, M. (2010). *Uncertainty in Policy Making □: Values and Evidence in Complex Decisions*. London: Earthscan.

Hess, J., Mcdowell, J. Z., & Luber, G. (2012). Integrating Climate Change Adaptation into Public Health Practice□: Using Adaptive Management to Increase Adaptive Capacity and Build Resilience. *Environmental Health Perspectives*, *120*(2), 171–180.

Horton, R. (2007). Launching a new movement for mental health. *Lancet*, *370*(9590), 806. doi:10.1016/S0140-6736(07)61243-4

Hughes, L., & McMichael, T. (2011). *The critical decade: climate change and health* (p. 44). Canberra. Retrieved from http://climatecommission.gov.au/wp-content/uploads/111129_FINAL-FOR-WEB.pdf

Hulme, M. (2009). *Why We Disagree About Climate Change: Understanding Controversy, Inaction and Opportunity*. *lavoisierfr* (Vol. 39, p. 432). Cambridge: Cambridge University Press. doi:10.1177/0094306109356659v

Human Rights and Equal Opportunity Commission (HREOC). (2008). *Human rights and climate change - background paper*. Sydney. Retrieved from www.humanrights.gov.au

Hunt, A., & Watkiss, P. (2010). Climate change impacts and adaptation in cities: a review of the literature. *Climatic Change*, *104*(1), 13–49. doi:10.1007/s10584-010-9975-6

IPCC. (2007). Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. Geneva: Intergovernmental Panel on Climate Change.

IPCC. (2012). Summary for Policymakers. *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation [Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.)]. A S* (pp. 1–19). Cambridge, UK, New York, NY, USA: Cambridge University Press.

Ison, R., Collins, K., Colvin, J., Jiggins, J., Roggero, P. P., Seddaiu, G., Steyaert, P., et al. (2011). Sustainable catchment managing in a climate changing world: new integrative modalities for connecting policy makers, scientists and other stakeholders. *Water Resources Management*, *25*(15), 3977–3992. Retrieved from http://www.springerlink.com/index/10.1007/s11269-011-9880-4

Ison, R., Russell, D., & Wallis, P. (2009). *Adaptive water governance and systemic thinking for future NRM: action research to build MDBA capability* (p. 68). Melbourne: Monash Sustainability Institute.

Jorm, A. F., Griffiths, K. M., Christensen, H., & Medway, J. (2002). Research priorities in mental health, part 1: an evaluation of the current research effort against the criteria of disease burden and health system costs. *Australian & New Zealand Journal of Psychiatry*.

Keim, M. E. (2008). Building human resilience: the role of public health preparedness and response as an adaptation to climate change. *American Journal of Preventive Medicine*, *35*(5), 508–16. doi:10.1016/j.amepre.2008.08.022

Klinenberg, E. (2002). *Heatwave: A social autopsy of disaster in Chicago* (p. 320). Chicago: University of Chicago Press.

Kovats, R. S., Jendritzky, G., Menne, B., & Ebi, K. L. (2006). Heatwaves and Human Health. In B. Menne & K. Ebi (Eds.), *Climate Change and Adaptation Strategies for Human Health* (pp. 63–97). Darmstadt, Germany: Steinklopff-Verlag.

Lim, B., Spanger-Siegfried, E., Burton, I., Malone, E. L., & Huq, S. (2004). *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures* (p. 248). Cambridge, UK.

Linnenluecke, M. K., & Griffiths, A. (2012). Assessing organizational resilience to climate and weather extremes: complexities and methodological pathways. *Climatic Change*, *113*(3), 933–947. doi:10.1007/s10584-011-0380-6

Longstaff, P. H. (2005). *Security, resilience, and communication in unpredictable environments such as terrorism, natural disaster, and complex technology* (p. 105). Cambridge, Mass.

Longstaff, P. H., & Yang, S.-U. (2008). Communication Management and Trust□: Their Role in Building Resilience to " Surprises " Such as Natural Disasters , Pandemic Flu , and Terrorism. *Ecology and Society*, *13*(1), 15.

Maes, M., De Meyer, F., Thompson, P., Peeters, D., & Cosyns, P. (1994). Synchronized annual rhythms in violent suicide rate, ambient temperature and the light-dark span. *Acta psychiatrica Scandinavica*, *90*(5), 391–6. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/7872046

Mallon, K., Hamilton, E., Black, M., Beem, B., & Abs, J. (2013). *Adapting the community sector for climate extremes* (p. 286). NCCARF. Retrieved from http://www.nccarf.edu.au/sites/default/files/attached_files_publications/Mallon-Adapting-Community-Sector-Climate-Extremes.pdf

McCarthy, J. J., Canziani, O. F., Leary, N. A., Dokken, D. J., & White, K. S. (2001). *Climate Change 2001: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge: Cambridge University Press.

McMichael, a J., & Lindgren, E. (2011). Climate change: present and future risks to health, and necessary responses. *Journal of internal medicine*, *270*(5), 401–13. doi:10.1111/j.1365-2796.2011.02415.x

McMichael, A., Campbell-Lendrum, D., Kovats, S., Edwards, S., Wilkinson, P., Wilson, T., Nicholls, R., et al. (2004). Global climate change. *Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors* (World Heal., p. . 1543–1651). Geneva.

McMichael, A., Campbell-Lendrum, D Corvalan, C., Ebi, K. L., Githeko, A., Scheraga, J., & Woodward, A. (2003). *Climate Change and Human Health: Risks and responses*. Geneva.

McMichael, T., & Blashki, G. (2007). Climate Change and Primary Health Care. *Australian Family Physician*, *36*(12), 986–989.

Moss, J. (2009). *Climate change and social justice*. (J. Moss, Ed.) (Social Jus., p. 253). Melbourne: Melbourne University Press.

Moss, R. H., & Schneider, S. H. (2000). Uncertainties in the IPCC TAR: Recommendations to lead authors for more consistent assessment and reporting. In R. Pachauri, T. Taniguchi, & K. Tanaka (Eds.), *Guidance Papers on the Cross Cutting Issues of the Third Assessment Report of the IPCC* (pp. 33–51).

National Health and Medical Research Council. (2011). Climate Change. *4 July*. Retrieved from http://www.nhmrc.gov.au/your-health/climate-change

NCCARF. (2011). Climate Change and the Community Welfare Sector-Risks and Adaptations research project. Retrieved from http://www.nccarf.edu.au/content/climate-change-community-welfare-risks-and-adaptation

NCCARF. (2012a). Leading adaptation practices and support strategies for Australia: An international and Australian review of products and tools. Retrieved from http://www.nccarf.edu.au/publications/leading-adaptation-practices-and-support-strategies

NCCARF. (2012b). About NCCARF. Retrieved January 31, 2013, from http://www.nccarf.edu.au/nccarf

NCCARF. (2012c). NCCARF Human Health Node. Retrieved from http://www.nccarf.edu.au/research/thematic/399

NCCARF. (2012d). National Climate Change Adaptation Research Plan Emergency Management Update 2012. Retrieved January 24, 2013, from http://www.nccarf.edu.au/content/narp-emergency-management

NCCARF. (2012e). *Eight Principles of Adaptation Planning* (p. 3). Griffith, Australia. Retrieved from http://www.nccarf.edu.au/publications/eight-principles-adaptation-planning

Nelson, V., Meadows, K., Cannon, T., Morton, J., & Martin, A. (2002). Uncertain predictions, invisible impacts, and the need to mainstream gender in climate change adaptations. *Gender & Development*, *10*(2), 51–59.

Norris, F. H., Friedman, M. J., & Watson, P. J. (2002). 60,000 disaster victims speak: Part II. summary and implications of the disaster mental health research. *Psychiatry*, *65*(3), 240–260. Retrieved from http://search.proquest.com/docview/220129416?accountid=13552

Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., & Al, E. (2002). 60,000 disaster victims speak: Part I. an empirical review of the empirical literature, 1981-2001. *Psychiatry*, *65*(3), 207–239. Retrieved from http://search.proquest.com/docview/220118858?accountid=13552

Olaris, K., & North Yarra Community Health. (2008). Community Health Services and Climate Change : Exploring the Sector ' s Capacity to Respond. *Environmental Health*, *8*(2), 28–41.

O'Brien, K. L., & Wolf, J. (2010). A values-based approach to vulnerability and adaptation to climate change. *Wiley Interdisciplinary Reviews: Climate Change*, *1*(2), 232–242. doi:10.1002/wcc.30

Page, L. A., Hajat, S., & Kovats, R. S. (2007). Relationship between daily suicide counts and temperature in England and Wales. *The British journal of psychiatry : the journal of mental science*, *191*, 106–12. doi:10.1192/bjp.bp.106.031948

Parkinson, D., Lancaster, C., & Stewart, A. (2011). A numbers game: lack of gendered data impedes prevention of disaster-related family violence. *Health Promotion Journal of Australia*, *22*(Special Issue), S42. Retrieved from http://search.informit.com.au.ezproxy.lib.rmit.edu.au/documentSummary;dn=076161195737273;res=IELHEA

Patrick, R., & Capetola, T. (2011). It's here! Are we ready? Five case studies of health promotion practices that address climate change from within Victorian health care settings. *Health Promotion Journal of Australia*, *22*(Special Issue), S61–7. Retrieved from http://search.informit.com.au.ezproxy.lib.rmit.edu.au/documentSummary;dn=076291626536081;res=IELHEA

Patrick, R., & Smith, J. A. (2011). Core health promotion competencies in Australia: are they compatible with climate change action? *Health promotion journal of Australia*, *22*(Special Issue), S28–33. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22518916

Patz, J. a, Campbell-Lendrum, D., Holloway, T., & Foley, J. a. (2005). Impact of regional climate change on human health. *Nature*, *438*(7066), 310–7. doi:10.1038/nature04188

Patz, J., Engelberg, D., & Last, J. (2000). The effects of changing weather on public health. *Annual Review of Public Health*, *21*, 271–307.

Pelling, M., High, C., Dearing, J., & Smith, D. (2007). Shadow spaces for social learning: a relational understanding of adaptive capacity to climate change within organisations. *Environment and Planning A*, *40*(4), 867–884.

Personal communication. (2013a). *S. Lavery*. Melbourne, Victoria: Victorian Government Department of Health.

Personal communication. (2013b). *D. Voronoff*. Melbourne, Victoria: Victorian Government Department of Human Services.

Personal communication. (2013c). *T. Mitchell*. Melbourne, Victoria: Victorian Government Department of Health.

Pfefferbaum, B., Reissman, D., Pfefferbaum, R., Klomp, R., & Gurwith, R. (2005). Building resilience to mass trauma events. *Handbook on Injury and Violence Prevention Interventions*. New York: Kluwer Academic Publishers.

Quiggin, J. (2009). Climate change and intergenerational equity. In J. Moss (Ed.), *Climate change and social justice* (Social Jus., pp. 67–81). Melbourne: Melbourne University Press.

Reser, J. P., & Swim, J. K. (2011). Adapting to and coping with the threat and impacts of climate change. *The American Psychologist*, *66*(4), 277–89. doi:10.1037/a0023412

Rowe, R. (2008). Feature ... Achieving a Local Response to Climate Change. *Health Issues*, (Spring Feauture), 30–34.

Rowe, R., Thomas, A., & Southern Grampians and Glenelg Primary Care Partnership. (2008). *Climate Change Adaptation: A Framework for Local Action* (p. 31). Melbourne.

Salcioglu, E., Basoglu, M., & Livanou, M. (2007). Post-traumatic stress disorder and comorbid depression among survivors of the 1999 earthquake in Turkey. *Disasters*, *31*(2), 115–29. doi:10.1111/j.1467-7717.2007.01000.x

Samet, J. (2010). *Public Health : Adapting to Climate Change* (p. 13). Washington D.C. Retrieved from http://www.rff.org/rff/documents/RFF-IB-10-06.pdf

Sanchez-Rodriguez, R. (2009). Learning to adapt to climate change in urban areas. A review of recent contributions. *Current Opinion in Environmental Sustainability*, *1*(2), 201–206.

Saniotis, A., & Bi, P. (2009). Global Warming and Australian Public Health: Reasons to be Concerned. *Australian Health Review*, *33*(4), 611. Retrieved from http://search.informit.com.au.ezproxy.lib.rmit.edu.au/documentSummary;dn=301655839503155;res=IELHEA

Satterthwaite, D. (2009). The implications of population growth and urbanization for climate change. *Environment and Urbanization*, *21*(2), 545–567. doi:10.1177/0956247809344361

Schön, D. A., & Rein, M. (1995). *Frame Reflection*. New York: Basic Books.

SEHCP South East Healthy Communities Partnership. (n.d.). *Climate change adaptation and vulnerable groups* (p. 12). Dandenong.

SEHCP South East Healthy Communities Partnership, & Walker, R. (2012). *The relationship between climate change and violence: a literature review* (p. 18). Dandenong.

Semenza, J. C., & Maty, S. (2007). *Macrosocial Determinants of Population Health* (p. 19). New York, NY: Springer New York. Retrieved from http://www.springerlink.com/index/10.1007/978-0-387-70812-6

Senge, P. M. (1990). *The Fifth Discipline: The Art & Practice of The Learning Organisation* (p. 371). New York: Currency Doubleday.

Smith, K. R. (2008). Mitigating, Adapting, and Suffering: How Much of Each? *Annual Review of Public Health*, *29*(1), 3. doi:10.1146/annurev.pu.29.031708.100011

Spickett, J., Brown, H., & Katscherian, D. (2008). *Health impacts of climate change : Adaptation strategies for Western Australia* (p. 75). Perth. Retrieved from http://www.public.health.wa.gov.au/cproot/1510/2/Health_Impacts_of_Climate_Change.pdf

Srinivasan, S., O'Fallon, L. R., & Dearry, A. (2003). Creating healthy communities, healthy homes, healthy people: initiating a research agenda on the built environment and public health. *American Journal of Public Health*, *93*(9), 1446–50. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1447991&tool=pmcentrez&rendertype=abstract

Standards Australia/Standards New Zealand. (2009). Australian Standard AS/NZS ISO 31000:2009. *Risk management - principles and guidelines*. Sydney: Standards Australia.

Stanley, J. (2010). *Promoting Social Inclusion in Adaptation to Climate Change: Discussion Paper* (p. 68). Melbourne. Retrieved from http://monash.edu/research/sustainability-institute/assets/documents/promoting_social_inclusion_in_adaptation_to_climate_change_final.pdf

Stough, L. M., Sharp, A. N., Decker, C., & Wilker, N. (2010). Disaster case management and individuals with disabilities. *Rehabilitation Psychology*, *55*(3), 211–220. doi:http://dx.doi.org/10.1037/a0020079

Sweet, M. (2011). Action on climate change requires strong leadership from the health sector. *Health Promotion Journal of Australia*, *22 Spec No*(1), S4–5. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22518911

Tam, J., & McDaniels, T. L. (2013). Understanding individual risk perceptions and preferences for climate change adaptations in biological conservation. *Environmental Science & Policy*, *27*(0), 114–123. doi:http://dx.doi.org/10.1016/j.envsci.2012.12.004

Tapsell, S. M., & Tunstall, S. M. (2008). "I wish I'd never heard of Banbury": the relationship between "place" and the health impacts from flooding. *Health & place*, *14*(2), 133–54. doi:10.1016/j.healthplace.2007.05.006

The Climate Change Communication Advisory Group. (2010). *Communicating climate change to mass public audiences* (p. 14). Cardiff. Retrieved from http://pirc.info/downloads/communicating_climate_mass_audiences.pdf

Thomas, D. S. G., & Twyman, C. (2005). Equity and justice in climate change adaptation amongst natural-resource-dependent societies. *Global Environmental Change*, *15*(2), 115–124. doi:10.1016/j.gloenvcha.2004.10.001

Thomas, P., & Capon, T. (2011). Climate Change and Health□: Impacts and Adaptation. *Issues*, *94*(March), 22–26.

Thornicroft, G. (2007). Most people with mental illness are not treated. *Lancet*, *370*(9590), 807–8. Retrieved from http://dx.doi.org/10.1016/S0140-6736(07)61392-0

URS, CSIRO, & ISI. (2007). *Understanding Climate Change Impacts - A Climate Change Adaptation Framework* (p. 8). Wodonga, VIC. Retrieved from http://www.climatechange.vic.gov.au/__data/assets/pdf_file/0017/73232/UnderstandingandadaptingintheNorthEast2007.pdf

VCCCAR. (2013). Implementing tools to increase adaptive capacity in the community and natural resource management sectors. Retrieved January 30, 2013, from http://www.vcccar.org.au/implementing-tools-to-increase-adaptive-capacity-in-community-and-natural-resource-management

VCOSS Victorian Council of Social Service. (2007). *Climate change and drought policy in Victoria: context and recommendations for VCOSS* (p. 34). Melbourne.

Victorian Government. (2000). *Primary Care Partnerships: going forward* (Vol. 10, p. 18). Melbourne. doi:10.1108/14769018200200050

Victorian Government. (2006). *Our Environment: Our Future* (p. 88). Melbourne, Victoria.

Victorian Government. (2009). *Heatwave planning guide: development of heatwave plans in local councils in Victoria* (p. 52). Melbourne. Retrieved from http://docs.health.vic.gov.au/docs/doc/18BA71008326BA63CA257A360018513D/$FILE/planning-guide.pdf

Victorian Government Climate Change Act 2010 (2010). Melbourne.

Victorian Government. (2010b). *Primary Care Partnerships: Achievements 2000 to 2010* (p. 20). Melbourne. Retrieved from http://www.health.vic.gov.au/pcps/downloads/pcps_achievements2010.pdf

Victorian Government. (2011a). *Review of the Climate Change Act 2010* (p. 21).

Victorian Government. (2011b). Integrated Care: Wellbeing, Integrated Care and Ageing - Department of Health, Victoria, Australia. *September 2011*. c=AU; st=Victoria; o=State Government of Victoria; ou1=Department of Health. Retrieved January 30, 2013, from http://www.health.vic.gov.au/divisions/wica/integrated.htm

Victorian Government. (2011c). *Heatwave plan for Victoria: protecting health and reducing harm from heatwaves*. Melbourne.

Victorian Government. (2011d). *Heatwave plan review tool*. Melbourne.

Victorian Government. (2012a). Service Agreement Information Kit for Funded Agencies. c=AU,o=Victorian Government,ou=Department of Human Services. Retrieved January 24, 2013, from http://www.dhs.vic.gov.au/facs/bdb/fmu/service-agreement

Victorian Government. (2012b). *Victorian Government response to the Climate Change Act Review* (p. 7). Melbourne.

Victorian Government. (2012c). Service Agreement Information Kit for Funded Agencies: Emergency Preparedness. Melbourne. Retrieved January 24, 2013, from http://www.dhs.vic.gov.au/facs/bdb/fmu/service-agreement/4.departmental-policies-procedures-and-initiatives/4.19-emergency-preparedness-clients-and-services-policy

Victorian Government. (2012d). 4.18 Vulnerable people in emergencies. c=AU,o=Victorian Government,ou=Department of Human Services. Retrieved January 24, 2013, from http://www.dhs.vic.gov.au/facs/bdb/fmu/service-agreement/4.departmental-policies-procedures-and-initiatives/4.18-vulnerable-people-in-emergencies

Victorian Government. (2012e). 4.19 Emergency preparedness clients and services policy. Melbourne: c=AU,o=Victorian Government,ou=Department of Human Services. Retrieved January 10, 2013, from http://www.dhs.vic.gov.au/facs/bdb/fmu/service-agreement/4.departmental-policies-procedures-and-initiatives/4.19-emergency-preparedness-clients-and-services-policy

Victorian Government Department of Health Emergency Preparedness Clients and Services Policy 2012-13 Sept 2012 (2012). Melbourne: Victorian Government Department of Health.

Victorian Government. (2012g). *Municipal public health and wellbeing planning: Having regard to climate change* (p. 22). Melbourne. Retrieved from http://docs.health.vic.gov.au/docs/doc/F0E763623692A121CA257AD900719F4B/$FILE/MPHWP Climate change guidance.pdf

Victorian Government. (2012h). *Primary Care Partnerships " Bridging year " 2012-2013 Guidelines* (pp. 1–11). Melbourne. Retrieved from http://docs.health.vic.gov.au/docs/doc/Bridging-Year-2012-2013-Guidelines

Victorian Government. (2012i). *Primary Care Partnerships DRAFT Abridged Program Logic Consultation document*. Melbourne: Victorian Government Department of Health.

Victorian Government. (2012j). *Report on Climate Change and Greenhouse Gas Emissions in Victoria* (p. 27). Melbourne. Retrieved from http://www.climatechange.vic.gov.au/__data/assets/pdf_file/0005/136490/DSE_Greenhouse-Report_online.pdf

Victorian Government. (2013a). Community service organisations. *For service providers*. Retrieved January 28, 2013, from http://www.dhs.vic.gov.au/for-service-providers/children,-youth-and-families/Community-service-organisations

Victorian Government. (2013b). Primary Care Partnership Program Logic Primary Care Partnership Program Logic 2013-17, (May), 1–21. Retrieved from http://docs.health.vic.gov.au/docs/doc/5E35B44E161AF5C8CA257ACF00762128/$FILE/PCP Program Logic consultation draft May 2013.pdf

Victorian Government. (2013c). *Victorian Climate Change Adaptation Plan* (p. 98). Melbourne, Victoria. Retrieved from http://www.climatechange.vic.gov.au/__data/assets/pdf_file/0006/158640/4493_DSE_Climate_Change_Adaptation_Plan_WEB.pdf

Victorian Government. (2013d). *Guide to municipal public health and wellbeing planning* (p. 30). Melbourne. Retrieved from http://www.oehcsa.org.au/sites/www.oehcsa.org.au/files/A guide to MPHWB planning.pdf

Walker, R, Hassall, J., Chaplin, S., Congues, J., Bajayo, R., & Mason, W. (2011). Health promotion interventions to address climate change using a primary health care approach: a literature review. *Health Promotion Journal of Australia*, *22*(Special Issue), S6–12. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22518912

Walker, R., (2009). A comprehensive primary health care perspective on climate change. *Australian Journal of Primary Health*, *15*, 1–2. doi:10.1093/heapro/dan044

Walker, R., Hassall, J., Chaplin, S., Congues, J., & Bajayo, R. (2011). *A systematic review: The implications of climate change for health and community services*. *Health Promotion Journal of Australia* (Vol. 22, p. 38). Dandenong. Retrieved from http://www.publish.csiro.au/paper/HE11406

Wallis, P., Ison, R., & Samson, K. (2013). Identifying the conditions for social learning in water governance in regional Australia. *Land Use Policy*, *31*, 412–421. Retrieved from http://www.sciencedirect.com/science/article/pii/S0264837712001457

Weaver, H. J., Blashki, G. A., Capon, A. G., & McMichael, A. J. (2010). Climate change and Australia's healthcare system - risks, research and responses. *Australian Health Review*, *34*(4), 441–4. doi:10.1071/AH09829

Webb, R., & Beh, J. (2013). *Leading adaptation practices and support strategies for Australia : An international and Australian review of products and tools* (p. 109). Griffith, Australia. Retrieved from http://static.weadapt.org/knowledge-base/files/1155/5149b9e349390webb-2013-leading-adaptation-practices-support-web-0.pdf

Wisner, B., & Adams, J. (2002). *Environmental Health in Emergencies and Disasters*. Geneva: World Health Organization.

Wolf, J. (2011). Climate Change Adaptation as a Social Process. (J. D. Ford & L. BerrangFord, Eds.)*Advances in Global Change Research*, *42*, 21–32.

World Health Organization. (2008). *World Health Report 2008 - Primary Health Care: Now more than ever*. Geneva. Retrieved from http://www.who.int/whr/2008/whr08_en.pdf

Appendix 1: Outline used for semi-structured interviews

Introduction (10min)

1. a. Introduce VCCCAR IA Research team, history and roles
   b. Explain what the research is about (using the PIS):
   'The project is called 'Implementing tools to increase adaptive capacity in the community and natural resource management sectors'. Its main aim is to better understand if and how government service providers and funded agencies adapt to climate change impacts. The project runs until November 2013 and is funded by the Victorian Government through the Victorian Centre for Climate Change Adaptation Research (VCCCAR).'

   c. Explain why we are doing these conversations/interviews: *to gain a better understanding of the climate change adaptation needs, capacities and context of your organisation.*
   d. Explain how long the conversation will take and how it will be structured
   e. Explain ethics clearance and consent forms (interview and audio recording) and obtain relevant signatures. Give a copy of each form to each participant.
   f. Turn audio recorder on if consent was given.
   g. Ask each interviewee:
      - what their role in their organisation is,
      - how they got there (training and employment background)
      - how long they have been with this organisation & in this role.
   h. Note down the following demographic information: gender, age group (e.g. below 25, 26-35, 36-45, etc.), position title.

Rich picture drawing (15min)

2. **Rich picture: What is happening in your sector with regard to responding to and planning for climate variability and change**

   a. Ask the participant/s to draw what they see happening using pictures to represent the situation. Prompts/instructions:
      - Put yourself in the picture
      - You can label things and use words
      - What do you see that is problematic or significant?
   b. Ask the participant to describe the picture (try not to interrupt initially except for clarification)
   c. Use the picture as a basis for a discussion on the following themes

Semi-structured interview (up to 45min)

Take care to avoid leading questions. Only use closed questions for clarification purposes.

3. ***Who is in the picture and why are they in there – what are their roles?***

Additional questions e.g.:

- What **key people** and **organisations, networks, partnerships** and other entities are in the picture
- Who is influential in this situation? Who is affected by or important to the situation but not influential?
- Who isn't represented? Why?
- What are the relationships between the different people/organisations represented like? Who needs to be talking to whom? Do they? Informally, formally, through what mechanisms?

4. ***Where do you get support on how to address these issues from?***

Additional questions e.g.:

- What sources of information do you regularly use? What makes this useful?
- In general, what makes information 'usable' for you?
- Who/what supports you in planning for and responding to climate variability and change?
- What information is missing? What kind of support is lacking?

5. ***What laws, policies and rules influence your ability to respond to/plan for climate variability and change?***

Additional questions e.g.:

- Which legislation influences your day-to-day decision-making in this context?
- What policies exist that have an influence here – at various levels of government and at an organisational level?
- What legal duties do you have that are, or might be, affected by climate variability and change

6. ***What helps and what gets in the way?***

Draw a spectrum line from '0' to '10' and ask them to mark on where they feel they are in response to the statement:

'I have all/none of the support I need to make progress on adaptation'

e.g.

0 ——————————x—————————— 10

Then you can interrogate this further, e.g.:

Why are you not at zero? (what are the good/supportive things that are happening?)

Why are you not at 10? (what prevents you being at 10, what is missing etc.)

Where would you like to be in 2 years' time? (or one year or five years) – mark on a second x in

the spectrum line.

What would it take to get there?

This should prompt a discussion about what would support their progress in responding to adaptation.

If necessary, probe further using the above questions to establish where the main barriers lie, e.g. at the individual, organisational, sectoral level?

Closing the Interview

7. a. At the end of the interview, ask what else they would like to tell you that hasn't been covered yet. Any questions that we didn't ask but that we should have asked?
   b. Turn audio recording off
   c. Ask for permission to take a photo of the rich picture and obtain signature on photo consent form
   d. Thank participants
   e. Discuss what will happen with the information they provided
   f. Discuss how and when you will follow up with them
   g. Discuss how they can stay involved in the project (further activities, email updates, etc.)

Appendix 2: De-identified record of respondents

Respondent ID	Geographic Context Rural (R) Peri-Urban (PU) Urban (U)	Level of Employment Officer (O) Middle Management (MM) Executive (E)
r1	U	MM
r2	R	E
r3	U	MM
r4	PU	MM
r5	PU	O
r6	PU	O
r7	U	MM
r8	U	O
r9	U	E
r10	PU	O
r11	R	E
r12	PU	E
r13	U	E
r14	R	MM
r15	R	MM
r16	R	MM
r17	R	MM
r18	U	MM
r19	U	MM
r20	U	MM
r21	U	MM
r22	PU	E
r23	U	O
r24	R	MM
r25	U	E
r26	R	MM
r27	R	E
r28	R	MM
r29	R	O
r30	R	O
r31	R	MM
r32	R	MM
r33	R	MM
r34	R	O
r35	R	O
r36	R	E
r37	U	E
r38	U	E
r39	U	MM
r40	U	E
r41	U	E
r42	R	O
r43	R	O
r44	U	E
r45	U	E

r46	PU	E
r47	PU	E
r48	R	E
r49	U	E
r50	U	MM
r51	U	O
r52	U	O
r53	PU	MM
r54	PU	E
r55	U	U
r56	PU	E
r57	R	E
r58	R	O
r59	U	MM
r60	U	MM
r61	U	E
r62	PU	O
r63	PU	MM
r64	R	O
r65	R	E
r66	U	E
r67	U	O
r68	U	MM
r69	R	O
r70	R	O
r71	U	MM
r72	U	MM
r73	PU	MM

Appendix 3: VCCCAR IA NVivo Coding Framework

The framework below was used to code and analyse qualitative empirical research material (rich pictures, interview transcripts, organisational publications, and interview notes) using the software NVivo10. Coding occurred at the level of the sub-nodes mentioned in the framework. The coding framework was developed by the VCCCAR IA research team, based on Ballard's 'model of the change process for sustainability' (Ballard, 2005).

Node	Description	Sub nodes	Description of sub nodes
1. History	Aspects of the historical situation that influence the current situation in which organisations are adapting to climate change. These are elements that can influence or even structure (e.g. path dependencies) what can be achieved.	1 Governance history 2 Previous research 3 Organisational history 4 Evolution of organisational culture 5 Individual history 6 Regional history	1 What is said about previous governance approaches 2 What is said about past research work 3 Background to current organisational practice and structure 4 Background to current organisational identity and culture 5 Link between personal journey and organisational evolution 6 Historical aspects of the geographical region
2. Awareness	Awareness of what is happening and of what is required, including access to grounded usable information and processes to make sense of how projected climate impacts affect core business for an organisation and awareness of the scale, urgency and structure of the issues – its complexity, multi layeredness, absence of 'quick fixes', time dimension for creating effective change etc.	1 CC information availability 2 CC and the organisation 3 CC terminology 4 CC impacts 5 Understanding CC vulnerabilities 6 Organisational priorities and CC 7 Sectoral priorities and CC 8 Local/regional	1 Availability of usable (including trustworthy and locally appropriate) information 2 Ability to make the connection between a changing climate and the core purpose and practice of the organisation or on their beneficiaries 3 Understanding climate terminology and language 4 Understanding what the main CC impacts are that affect society/the sector/the organisation 5 Understanding how a changing climate will impact particular vulnerable groups (could have sub nodes of e.g. low income groups, health impacts on certain groups

		priorities and CC 9 Framing of CC adaptation	6 Understanding of how climate change overlays existing organisational priorities 7 Understanding of how climate change overlays existing sectoral priorities 8 Understanding of how climate change overlays existing local/regional priorities 9 Awareness of how climate change adaptation is framed
3. Agency	The ability to find a response that seems personally (or organisationally) meaningful - knowing what to do, feeling that that action is appropriate and worthwhile, knowing how this fits within an organisation and its existing priorities.	1 Linking CCA with existing agendas 2 Identifying CCA responses 3 Accessing resources for CCA 4 Role of individuals in CCA 5 Organisational role in CCA 6 Leadership in CCA 7 Motivation for CCA 8 Attitude towards CC	1 Ability to make tangible links to existing political agendas 2 Ability to identify meaningful and worthwhile responses (despite constraints) 3 Availability and access to resources including money, people, skills, expertise 4 Personality and mind set of individuals in relation to CCA 5 The role of the organisation in responding to a changing climate 6 Leadership in relation to responding to a changing climate 7 Motivation for responding to a changing climate (e.g. compliance/tick box, nice to have, reduce vulnerability(8 Attitude towards climate change, e.g. supportive, unsure, climate change sceptic etc (could contain sub nodes).
4. Association	Association with other people in groups and networks, e.g. opportunities to learn from others, share experiences, have a common platform to advocate for change, opportunities for dialogue across different groups	1 Network participation 2 Value of networks 3 Research collaboration	1 Participating in networks by individuals or at the organisational level 2 Statements made about the value of networks (positive and negative) 3 Collaboration with researchers and academics and

		4 Peer-to-peer collaboration 5 Other types of collaboration 6 Sharing experiences	involvement in research projects 4 Collaboration with peers from other organisations of the same type 5 Collaboration with others (not academics and peer-to-peer) on projects, activities etc. 6 Opportunities to learn/share/discuss ideas and experience relevant to adaptation with others
5. Action and Reflection	Learning cycles (double loop learning– did we reach our objective? Was it the right objective? Does it get us nearer to our goal?) and getting better at the skills and at questioning our assumptions.	1 Organisational learning 2 Individual learning 3 Using local knowledge 4 Monitoring and evaluating CCA 5 Managing organisational risk 6 Strategic planning	1 Opportunities/activities/experiences of organisational learning and reflection 2 Opportunities/activities/experiences of individual learning and reflection 3 Accessing and using local knowledge and experience for CCA 4 Reporting, monitoring and evaluating processes of CCA 5 Role of organisational risk management in CCA 6 Strategic planning for CCA / integrating CCA into strategic planning at an organisational level
6. Architecture	The container that all this exists in and how supportive it is of change – the organisational culture, politics, legislation, media, standards, codes, regulations, technological know how.	1 Powerful and influential actors 2 Sector architecture 3 Vulnerable groups 4 Current organisational culture 5 Political architecture and politics 6 Policy frameworks 7 Federal government 8 State government 9 Local government	1 Who is influential in the sector in relation to CCA? 2 The complexity of the sector in relation to CCA 3 Who is affected by and vulnerable to climate impacts? 4 How organisational ways of doing things (culture and identity) affect ability to respond to a changing climate 5 How changing party politics affects ability to respond to a changing climate 6 How changing policy frameworks affect ability to respond to a changing climate 7 What was said about the role of the Federal Government?

			8 What was said about the role of the State Government? 9 What was said about the role of local government?