

Framing Adaptation in the Victorian Context

Case Study Report City of Greater Bendigo

Hartmut Fünfgeld, Sophie Millin and Darryn McEvoy

May 2013

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This report should be cited as:

Fünfgeld H, S Millin and D McEvoy (2013): Framing Adaptation in the Victorian Context - Case Study Report City of Greater Bendigo. 32p. Melbourne: Victorian Centre for Climate Change Adaptation Research / RMIT University.

ISBN: 978 0 7340 4841 7

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Executive Summary

The purpose of this report is to present and discuss the findings of qualitative research into institutional barriers and opportunities of climate change adaptation, conducted by the Victorian Centre for Climate Change Adaptation Research (VCCCAR) for the City of Greater Bendigo (CoGB). The CoGB has been a case study partner in the VCCCAR project 'Framing multi-level and multi-actor adaptation responses in the Victorian context'.

The CoGB is a major regional centre. It is located in the Victoria, about 150km north of Melbourne and includes the state's third largest urban area. It has a population of just over 100,000.

The research findings are presented to provide feedback to the CoGB, to assist in guiding its further adaptation process, and to share research results with other interested stakeholders.

The research was conducted over a period of 12 months, using a collaborative and qualitative approach. CoGB staff from different divisions took part in the research, which was facilitated by the Sustainable Environment Unit. The research methods used were semi-structured interviews, focus group discussions, and informal key informant discussions.

The study identified a number of institutional barriers, opportunities and cross-cutting issues in relation to climate change adaptation at the CoGB. These are based on perceptions of the individuals involved in the study and the researchers' analysis of qualitative data.

The identified **barriers** were mainly related to:

- (1) *Knowledge of and attitude towards climate change*: The meaning of climate change; confusion between adaptation and mitigation; lack of acceptance of climate change; need for strategic approach to climate change
- (2) *Prevailing short term thinking*: Risk of lock-in; challenge of explaining value proposition for long-term investment
- (3) *Effective adaptation goals*: Articulation of goals; relevance of goals across the organisation; measuring progress towards achieving goals
- (4) *The funding of adaptation*: Internal competition for funding with other areas; risk of exceeding the organisation's financial capacity
- (5) *The internal governance of adaptation*: Role of councillors in adaptation; lack of unified policy position on climate change; engaging staff across the organisation; risk of burdensome process
- (6) *The external governance context of adaptation*: Lack of guidance from State Government; coordination across administrative boundaries; constantly changing policy environment

The identified **opportunities** were mainly related to:

- (1) *The existing organisational capacity for adaptation:* Building on existing capacity; relatively good human resource base
- (2) *Community education and dialogue:* CoGB as an information provider for the community; building on experience with behaviour change programs; advocating community needs to other levels of government
- (3) *Local political support:* Building on existing political support; articulating the CoGB's position on adaptation
- (4) *The business case for adaptation:* Gaining broad support from across the organisation; identifying incentives for action; addressing the benefits of preventative action over emergency response.
- (5) *Collaboration and shared learning:* Leveraging existing networks and partnerships; working more closely with service providers and state government agencies; becoming a stronger advocate
- (6) *Cross-organisational engagement in adaptation:* Incorporating needs and concerns of different directorates; developing a set of principles; using a risk-based approach to engage with all staff
- (7) *Assessing climate change:* Combining different assessment approaches; using risk identification process as a driver for adaptation; identifying sectors, areas and communities for more detailed studies.

The following **cross-cutting issues** were raised by participants. These can be considered strategic areas that the CoGB may want to concentrate on as part of developing its agenda for climate change adaptation:

- (1) Adaptation as a continuous, flexible process
- (2) The scope and boundaries for adaptation
- (3) Community resilience and adaptation
- (4) Social equity and adaptation.

The report concludes with a number of **implications** for the City of Greater Bendigo's adaptation policy and practice. These are the researchers' interpretation of the extent to which the research findings can assist in guiding the CoGB's adaptation process into the future. These interpretations are presented in the report using a framework of ten adaptation policy areas.

1 Introduction

From March 2011 to February 2012, the City of Greater Bendigo (CoGB) participated in the research project 'Framing multi-level and multi-actor adaptation responses in the Victorian context' (Framing Adaptation in the following), funded by the Victorian State Government through the Victorian Centre for Climate Change Adaptation Research (VCCCAR). The CoGB was one of four local government partners that collaborated with VCCCAR researchers on the project as an in-depth case study.

1.1 Purpose and structure of this report

This report summarises the research findings on institutional barriers and opportunities for the CoGB's process for adapting to climate change, with a view to:

- Provide feedback to case study research on adaptation conducted with the CoGB
- Assist the CoGB in developing and implementing a process for climate change adaptation
- Share key research results with a wider audience of interested stakeholders.

The report presents some background on the Framing Adaptation project (section 1.2) and a summary of the methodology (section 1.3). Section 2 provides an overview of the CoGB's approach to adaptation and its adaptation planning process to date. Section 3 presents the research findings on institutional barriers and opportunities. Key points are then discussed in section 4. Section 5 provides some concluding remarks.

1.2 Background on the project

Framing Adaptation is an 18-month collaborative research project, which aims to develop and test an operational framing of climate change adaptation that local and regional authorities can use as a 'roadmap' to adapt to the current and future impacts of climate change. Uncovering the framing of climate change adaptation processes forms the central pillar of the Framing Adaptation project.

The project is structured according to four discrete work packages (WPs):

- WP1 – conceptual research towards developing an operational framework for adaptation,
- WP2 – preliminary economic analysis of natural disasters and climate change impacts,
- **WP3 – field research to support the development of an operational framework in selected case studies,**
- WP4 – social research to explore local narratives of climate change adaptation in selected case studies.

This report summarises research conducted as part of WP3 and contributed to project milestone 3.1: '*Individual reports for each of the case studies*'. During the research for WP3, reference was made to the conceptual research findings of WP1 on the framing of climate change adaptation. The research team for WP3 comprised:

- Professor Darryn McEvoy – chief investigator
- Dr Hartmut Fuenfgeld – primary researcher
- Sophie Millin – research assistant (since December 2011).

1.3 Methodology

This section briefly outlines the research methods used for the CoGB case study. The research approach was collaborative and two-way in nature. The primary researcher on the project visited the CoGB on a regular basis to conduct interviews and focus group discussions on various topics, and to participate in the City's ongoing adaptation planning process. This collaborative approach provided a framework for shared learning aimed at satisfying the research project's objectives while also providing tangible benefits to the CoGB. From the CoGB, the Sustainable Environment Unit was the key liaison unit for the project.

1.3.1 Semi-structured interviews

A total of six in-depth semi-structured interviews with CoGB staff from different divisions were conducted, to explore differences in the framing of adaptation and shed light on perceived barriers and opportunities from different disciplinary and departmental angles. Each of the interviews lasted between 45 and 60 minutes. They involved a set of pre-structured questions, allowing the research to prompt key topics while allowing for a free flow of discussion. The interviews were recorded with the permission of the interviewees, and subsequently transcribed, coded and analysed.

In addition, each interview involved a card sorting exercise to determine different individual framings of climate change adaptation, where participants were asked to pick terms related to climate change adaptation from an array of paper cards and sort these into a ranked order, depending on which terms they found most relevant to their area of work. Observations made and discussions held during the card sorting exercise informed the findings presented in this report. The card sorting activity allowed participants to consider climate change adaptation terminology in a systematic way and describe their preferences for particular terms. These considerations are reflected in the research findings presented in Section 3.

1.3.2 Focus group discussions

Six focus group discussions were held involving participants from across the organisation. Each focus group had a dedicated discussion topic (see [Appendix 1](#) for a list of topics) that was explored by the researchers providing some information, followed by several rounds of brief discussions in response to pre-defined trigger questions. All focus groups were recorded with the permission of the participants, transcribed, coded and analysed.

1.3.3 Informal key informant discussions

The researchers also participated in a number of informal discussions with members of the CoGB's Sustainable Environment Unit on the City's adaptation process. These helped elicit further knowledge on the framing of adaptation within the City, as well as providing an opportunity for dialogue on institutional adaptation barriers and opportunities.

2 The City of Greater Bendigo and climate change adaptation

2.1 Background on Greater Bendigo¹

Greater Bendigo is a major regional centre and the third largest urban area in Victoria, about 150 kilometres north-west of Melbourne. Greater Bendigo has a population of just over 100,000 and covers almost 3,000 square kilometres of the central Victorian landscape, including several smaller towns and villages in the rural areas of the Loddon region (see Figure 1).



Figure 1: City of Greater Bendigo local government area and location

Over recent decades, Greater Bendigo's traditional reliance on manufacturing has diminished with the development of an increasingly important health, education and retail sector based in the city. Commerce, finance and government administration are other important economic activities.

Greater Bendigo's cultural heritage centres on the Loddon, Campaspe and Coliban River systems that flow into the Murray River Basin. The Indigenous people of the area are the Dja Dja Wurrung, Taungurung and Ngurai-illam Wurrung language groups of the Central Kulin nation. Traditional owners and elders have retained their spiritual and custodial connection to their country.

European pastoralists and squatters took up land in the region from 1835. The discovery of gold in 1851 resulted in a world-wide influx of immigrants, particularly from Europe, the Americas and

¹ Sources: Department of Planning and Community Development, <http://www.dpcd.vic.gov.au/localgovernment/find-your-local-council/greater-bendigo>; City of Greater Bendigo Council Plan 2009-13 (Updated 2011), http://www.bendigo.vic.gov.au/News_and_Information/Publications/Council_Plan

China, leading to the founding and economic and cultural development of Bendigo and smaller gold mining towns.

Mining and the need to secure resources such as water, timber and stone led to the establishment of an extensive network of Crown Land reserves. The Box-Ironbark ecology on public and private land continues to be of significant natural value. The Greater Bendigo and Heathcote-Graytown National Parks and other regional parks are located on protected public land, and provide a natural urban growth boundary around Bendigo and neighbouring Heathcote. The early Victorian Land Acts enabled the emergence of agriculture, viticulture, horticulture and associated food processing industries.

The City's European heritage is evident in its architecture and continues to exert an influence on its settlement patterns, with residential development dating back to the gold rushes of the 1850s. Bendigo's urban structure is based on spines leading away from the centre of the city along creeks and streams, which are today important road and rail corridors.

Greater Bendigo has experienced substantial population growth of 1.7 per cent from 2009-2010. In the period of 2006 to 2010, Greater Bendigo's resident population increased by approximately 2000 per annum². This growth indicates that significant changes in the requirements for housing will occur and emphasises the need for sound urban and regional planning.

As a consequence of climate change, Central Victoria faces a hotter and drier future, with fewer rainy days but increasing rainfall intensity. This means that the number of hot days and days of extreme fire danger will increase. Lower runoff and flows in the region's rivers and streams may reduce water availability and water quality³.

2.2 The City's activities on climate change adaptation

The CoGB Council Plan 2009-2013 mentions climate change as an 'important factor already affecting our population'. The City has formally adopted the precautionary principle as an overarching guide for decision-making (Council Plan, p.11).

Under the 'built and natural environment' theme, the Council Plan lists the following strategic objective for climate change adaptation (p.15):

- 'Be a leader and role model in climate change adaptation and ecologically sustainable development'.

² Source: Australian Bureau of Statistics, National Regional Profile: Greater Bendigo (C) (Local Government Area) 2011, <http://www.abs.gov.au/AUSSTATS/abs@nrf.nsf/Latestproducts/LGA22620Population/People12006-2010?opendocument&tabname=Summary&prodno=LGA22620&issue=2006-2010>

³ Source: State Government of Victoria Understanding climate change North Central Region, 2008, <http://www.climatechange.vic.gov.au/regional-projections/north-central>

For 2011-12, strategy 1.2: 'Adopt and promote environmentally sustainable practices' mentions the following as an action to be led by the Manager Environment:

- 'Complete Climate Change Adaptation Action Plan for City of Greater Bendigo'.

These stipulations have given the City a broad framework for developing a pathway for adapting to climate change. With the Sustainable Environment Unit taking the lead, the organisation has developed an approach towards adaptation that can be described by the following characteristics:

- Adaptation activities are conducted **in alignment with the CoGB's strategic planning** as outlined in the Council Plan 2009-13 and the Community Plan.
- **Climate science and climate change projections** are accepted as a given and form the basis of adaptation planning.
- Adaptation is considered as a being mainly about **organisational change**, managing uncertainty, decreasing vulnerability and increasing resilience, in order to maintain effective local government services.
- Adaptation is addressed using an **exploratory, considered approach** that involves ongoing involvement of various experts, to maximise effectiveness of all steps taken.
- **Communication and engagement across the organisation** is deemed critical to the success of adaptation planning.
- **Establishing partnerships with research organisations** helps ensure the adaptation process is based on latest scientific thinking and knowledge.

[Appendix 2](#) provides a detailed list of the CoGB's climate change adaptation activities up until the publication of this report, as well as identified next actions.

3 Research findings

This section summarises key issues that emerged during the empirical research. The information has been grouped into perceived barriers, perceived opportunities and cross-cutting themes of climate change adaptation.

It should be noted that, as explained in section 1.3, the researchers prompted the participants with themes for discussion, which were then explored in detail by the participants. While care has been taken to objectively analyse the qualitative data, the discussion-based research approach constitutes a bias in terms of the topics that were opened up for discussion by the research. The research findings may therefore not accurately reflect all issues that participants deem important.

The findings are presented below, following no particular order.

3.1 Perceived barriers to effective climate change adaptation

A number of potential barriers to effective climate change adaptation were identified by interview and discussion participants. They are represented in an aggregated form as key messages and avoiding further interpretation by the researchers. Many of the identified barriers point to implications for the CoGB's adaptation policy, which are discussed in section 4 below.

(1) Barriers relating to knowledge of and attitude towards climate change

- Climate change means different things to different people, within the CoGB and, reportedly, in the community.
- Climate change adaptation is often misinterpreted as what is commonly referred to as mitigation (e.g. increasing energy efficiency, reducing greenhouse gas emissions), with the distinction between mitigation and adaptation remaining unclear.
- Climate change is still not universally accepted as a scientifically proven fact among City staff, in particular among staff with less opportunity to be part of ongoing discussions and exchange on current topics.
- While the CoGB has done well on mitigation actions (e.g. reducing water use, increasing energy efficiency), responding and adapting to climate change requires better strategic planning and 'big picture' thinking.

(2) Barriers relating to prevailing short term thinking

- Short term thinking dominates the discussion on climate change, in particular in local political debates. Adaptation, however, requires a stronger focus on long-term planning.

- In infrastructure investment, short-term thinking creates the risk of lock-in, with the potential to become a costly way of making decisions.
- Explaining the value of investment into long-term planning versus short-term benefits to the community is challenging, in particular while climate change remains a contentious topic in the community. Community members prefer to see public funds being spent on measures with immediate visible returns.

(3) Barriers relating to effective adaptation goals

- It may be challenging for the CoGB to come up with clearly articulated goals for adaptation and make these relevant to all parts of the organisation.
- Progress towards adaptation goals may be difficult to measure in quantitative terms, but such measurement may be required to ensure adequate funding can be provided.

(4) Barriers relating to the funding of adaptation

- Internally, adaptation competes with other areas for funding, and in light of other challenges the CoGB is facing it may be difficult to argue why adaptation is a key priority.
- The amount of funding required for adaptation may soon exceed the CoGB's financial capacity, particularly in the context of unforeseeable extreme weather events that consume significant resources.

(5) Barriers relating to the internal governance of adaptation

- It is yet to be determined to what extent adaptation can or should be driven by councillors, as opposed to the administration taking on full leadership responsibility. Lack of support from councillors can be a substantial barrier to the success of adaptation.
- At present, the CoGB doesn't have a clearly articulated, unified policy position on climate change (other than its inclusion in the Council Plan). This makes it difficult to have a consistent approach and communication across the organisation.
- Adaptation cuts across all directorates within the CoGB. It will be challenging to effectively engage all relevant staff and ensure adaptation is mainstreamed into planning and decision-making in all organisational units. A particular challenge may be to ensure all operational staff and City workers become engaged in adaptation.
- The complexity of adaptation poses a risk of the organisation getting bogged down in a time-consuming adaptation process without achieving tangible outcomes.

(6) Barriers relating to the external governance context of adaptation

- Local government still lacks clear direction and guidance from State Government on adaptation, in particular as it relates to urban and regional planning.
- Climate change impacts are not confined to administrative boundaries. Adaptation needs to be planned and implemented in a manner consistent with neighbouring councils, regional authorities and State Government departments and agencies. This requires strong collaboration which can be costly, time-consuming and politically challenging.
- The external policy environment is in constant flux and climate change remains a highly contentious topic in political debate at all levels of government. This creates an uncertain political environment where responsibilities for adaptation are unclear.

3.2 Perceived opportunities for council

A number of potential opportunities for the CoGB to work effectively on climate change adaptation were identified by interview and discussion participants. These have been aggregated into the following key themes.

Some, but not all, of the opportunities identified correspond directly with perceived barriers and point to options for addressing these.

(1) Opportunities relating to existing organisational capacity for adaptation

- A significant number of activities are already underway at the CoGB that are directly related to adaptation (e.g. in the areas of emergency management, rural support, community development, as evidenced by an activity mapping exercise conducted in 2011). This means that the organisation can build on existing capacity in various directorates to address adaptation challenges.
- Compared to smaller local governments in the region, the CoGB is reasonably well-equipped in terms of staff capacity to provide leadership on adaptation. The Sustainable Environment Unit, for example, has been a key driver in the efforts on adaptation.

(2) Opportunities relating to community education and dialogue

- Climate change adaptation provides an opportunity for the CoGB to realise its role as an information provider and educate community members on climate change impacts. For example, community education and dialogue activities may be required to explain the importance of making strategic long-term decisions now, to avoid the need for further, more costly adaptation.
- The CoGB has experience with behaviour change programs in other areas, including climate change mitigation. It could draw on this experience and apply it to adaptation.

- Where adaptation challenges are beyond the CoGB's direct control, it can still play a pivotal role in informing the community, helping people realise their own responsibilities and capabilities to address climate change, and advocating these issues to other levels of government and relevant organisations.
- Some communities, businesses and individuals in the region have already adapted successfully to climate change and other socio-economic pressures. This presents an opportunity for the CoGB to learn from these success stories and support their replication where possible.

(3) Opportunities relating to local political support

- The importance and urgency of adaptation has already been acknowledged by some Councillors. This may be a good avenue for communicating the CoGB's need and responsibility towards other elected members and stakeholders.
- An articulated policy position on climate change adaptation, or climate change as a whole, adopted by Council could be an opportunity for boosting and formalising the CoGB's adaptation efforts.

(4) Opportunities relating to the business case for adaptation

- Developing a clear and concise business case for adaptation could be an important step towards gaining support from across the organisation, based on the grounds of financial sustainability and avoiding future costs.
- Continuously updated international research on climate science, the costs and benefits of adaptation, and socio-economic scenarios supports the business case for adaptation and provides increasing incentives for action. This information could be harnessed for articulating why adaptation is necessary.
- A business case for adaptation could specifically address potential benefits of preventative, early adaptation action, such as investing in building community resilience rather than focusing principally on emergency response and recovery⁴.

(5) Opportunities relating to collaboration and shared learning

- The CoGB is actively engaged in a number of public and private sector networks, which provide access to emerging best practice in adaptation. These provide opportunities for evaluating how adaptation has been addressed elsewhere, including what has worked elsewhere and what has

⁴ Note that since the research for this report was conducted, the CoGB has begun to develop a business case for adaptation and further strengthened its community resilience building activities.

not. The CoGB could draw on existing experience to ensure adaptation funds are spent wisely and known pitfalls are avoided.

- Adaptation requires high-level coordination with other local and regional authorities and businesses, such as essential service providers, state government agencies and non-governmental organisations. Adaptation provides an opportunity for working more closely with these organisations, towards shared visions and responsibilities for adaptation.
- The CoGB could further strengthen its role as an advocate for adaptation through its existing networks, in particular in relation to the sharing of adaptation responsibility with, and obtaining better guidance from, State Government.

(6) Opportunities relating to cross-organisational engagement in adaptation

- The CoGB has committed to developing a considerate, tailored approach to adaptation. This provides opportunities for incorporating the concerns and needs of different directorates and creating a sense of ownership across the organisation.
- To ensure broad ownership of the CoGB's approach to adaptation, a set of principles could be developed to guide the adaptation process.
- A risk-based approach to adaptation planning could help engage staff from across the organisation. Risk management is a widely accepted organisational management process.

(7) Opportunities relating to assessing climate change

- As part of a formal assessment of climate change, it may be useful to combine different assessment approaches, such as risk and vulnerability assessment, to engage with all parts of the organisation. A vulnerability perspective may assist in engaging those staff members directly involved in providing community services.
- Risk identification could be a powerful driver for adaptation across the organisation and help individual staff connect to adaptation challenges via their respective roles and responsibilities.
- Identifying key sectors, communities, or geographic areas, for which more detailed assessments of climate change risks and vulnerability need to be conducted is an opportunity for more effective adaptation.

Table 1 below provides an overview of the adaptation barriers and opportunities, as perceived by the staff members participating in the research.

Table 1: Overview of perceived barriers and opportunities for climate change adaptation at the City of Greater Bendigo

Barriers	Opportunities
<p>Knowledge of and attitude towards climate change (1)</p> <ul style="list-style-type: none"> • Different interpretations of climate change • Confusion btw. mitigation and adaptation • Climate scepticism • Lack of 'big picture' thinking 	<p>Existing organisational capacity for adaptation (1)</p> <ul style="list-style-type: none"> • Build on existing capacity for adaptation • Maximise reasonable staffing level to kick-off adaptation process
<p>Prevailing short term thinking (2)</p> <ul style="list-style-type: none"> • Short-term thinking dominates action • Risk of lock-in • Difficult to communicate need for shift in thinking 	<p>Community education and dialogue (2)</p> <ul style="list-style-type: none"> • Realise role as information provider to the community • Build on experience with behaviour change programs • Help communities better understand their own responsibilities • Learn from successful adaptation in private sector and civil society
<p>Effective adaptation goals (3)</p> <ul style="list-style-type: none"> • Difficult to develop effective adaptation goals • Progress towards goals difficult to measure 	<p>Local political support (3)</p> <ul style="list-style-type: none"> • Leverage existing support from councillors • Develop formal policy position on climate change
<p>Funding of adaptation (4)</p> <ul style="list-style-type: none"> • Competition with other priorities • Insufficient funding for implementing adaptation measures 	<p>Business case for adaptation (4)</p> <ul style="list-style-type: none"> • Develop a clear business case • Use new research findings as they become available • Articulate the local benefits of early adaptation
<p>Internal governance of adaptation (5)</p> <ul style="list-style-type: none"> • Role of councillors unclear • Lack of clear policy position on climate change • Challenge of mainstreaming adaptation into operations • Risk of getting bogged down in process 	<p>Collaboration and shared learning (5)</p> <ul style="list-style-type: none"> • Use networks for accessing best practice information • Coordinate efforts closely with local and regional partner organisations • Strengthen advocacy role
<p>External governance of adaptation (6)</p> <ul style="list-style-type: none"> • Lack of clear guidance from other levels of government • Lack of consistent adaptation planning across administrative boundaries • Uncertain political environment 	<p>Cross-organisational engagement in adaptation (6)</p> <ul style="list-style-type: none"> • Use tailored approach to create ownership • Develop a set of principles to guide adaptation process • Use risk-based approach to engage widely
	<p>Assessing climate change (7)</p> <ul style="list-style-type: none"> • Combine different approaches to climate change assessment • Use risk identification to connect adaptation responsibility to individual roles • Identify scopes for detailed assessments

3.3 Other cross-cutting themes

A number of cross-cutting themes were raised by participants. These were not discussed as either adaptation opportunities or barriers but flagged as important process and strategic aspects of climate change adaptation, which may guide the CoGB's adaptation agenda. They are summarised below.

(1) Adaptation as a continuous, flexible process

Participants stated that the nature of climate change requires the CoGB to consider adaptation as an ongoing process of organisational change. While adaptation planning may be seen by some staff members as a once-off activity (e.g. developing an adaptation plan), most participants were of the understanding that adaptation needed to become an ongoing process of changing how the CoGB operates in the face of climate change.

This would also involve ensuring that adaptation decisions are made with a degree of flexibility so that they can be adjusted when necessary (e.g. when new information on climate change impacts becomes available).

(2) Scope and boundaries for adaptation

In various discussions and interviews, questions regarding the scope of the CoGB's adaptation efforts arose. Setting boundaries for adaptation and defining what aspects of adaptation fall within the direct responsibility of the City was considered a matter of great importance. While it may be straightforward to limit the scope to the organisation's activities and services, it may be more difficult to draw and explain the boundaries between the responsibility for adaptation resting with local government and that of individual community members.

(3) Community resilience and adaptation

The concept of resilience was considered pivotal to the CoGB's approach to adaptation effort, because it ties in well with existing notions of community development used in emergency management and preparedness. While risk management may be a good approach for progressing adaptation within the organisation, community resilience building may be a suitable strategy for treating identified climate risks at community level.

(4) Social equity of adaptation

The issue of the social equity of climate change impacts and adaptation measures emerged during interviews and discussions. Equity concerns may relate to intergenerational equity (e.g. how much/how little of the CoGB's current resources should be invested into adaptation, and how much should future generations have to pay), socio-economic equity (which groups are most vulnerable to climate change impacts and the flow-on effects of adaptation measures), and gender equity (which climate change impacts or adaptation measures affect women more adversely than men, or vice versa).

4 Implications for the City's adaptation process

Based on the above themes and issues that emerged from the interviews and discussions, a number of observations can be made with regard to the CoGB's process for adapting to climate change.

In this section, the barriers, opportunities and cross-cutting issues are discussed using a 'ten policy areas framework' for climate change adaptation processes, which has been developed for the Framing Adaptation project as part of a research output called 'Adaptation Navigator'. This framework uses a map metaphor to describe climate change adaptation as a flexible, multi-layered process that involves addressing aspects of ten key areas of adaptation policy making. Barriers, opportunities and cross-cutting adaptation issues are analysed against each of the ten policy areas.

These observations summarise the researchers' interpretation of the research findings for guiding the CoGB's adaptation process into the future. Note that these are presented in no particular sequence or order of importance.



Figure 2: Framework: ten areas of adaptation policy

Knowing the climate science

Having a broad understanding of the scientific basis of climate change and the future impacts projected for Victoria can be an important rationale and motivator for adaptation action.

A number of identified barriers point to the relevance of knowledge and understanding on climate change science, including key scientific terms and concepts. Such barriers can exist for a range of reason (including scepticism regarding climate change science). An increasingly shared understanding of climate change issues across the organisation can help foster a sense of unity, encourage staff to consider climate change as part of its core business, and enable effective collaboration on the topic.

Organisations such as the CoGB can support organisational learning and a shared understanding by providing space for discussion of climate change science and latest research (i.e. via in-house seminars open to anyone). This can help develop and strengthen the organisation's approach to climate change adaptation (vis-à-vis the latest climate change science). This may include tapping into expert knowledge and articulating and discussing how climate change adaptation fits in with existing organisational priorities and providing insights into how other local government organisations have approached the issue. Such 'spaces for learning' can be instrumental in enhancing cross-organisational engagement in adaptation.

Determining the purpose and scope of adaptation

At the outset of adaptation processes, organisations can benefit from thoroughly examining the questions of 'why are we adapting' and 'for what purpose'. This can assist in developing a planned, considered approach and facilitating cross-organisational 'buy-in' into adaptation.

The field research data suggests that, in 2010/11 the CoGB spent a considerable effort on examining the purpose and scope of its adaptation process, which has been well received by those staff members involved. Engaging staff from different directorates, including the Executive during this scoping phase, appears to have generated interest and understanding of the reasoning and approach taken. It has also provided a canvas for future, more in-depth engagement and collaboration across the organisation, which will be useful during the next stages of adaptation (i.e. the risk identification process).

An issue that may require further clarification and communication across the organisation is the definition of the scope or boundaries for the organisation's adaptation activities. In addition, there is some concern among staff participating in the study that short-term thinking dominates over a more strategic, long-term approach across the local government sector. Strategic thinking, however, is pivotal to effective adaptation planning and implementation. The CoGB may want to consider further scoping exercises with key staff, where the role of adaptation as part of the City's strategic planning process can be analysed, including how the scope of adaptation is currently defined. This could involve using scenario planning to develop a collective view of the CoGB's future under climate change.

Understanding the policy context

Adaptation is rapidly evolving as a policy field at all layers of government in Australia. Local government has played a key role in making progress towards incorporating climate change impacts in organisational practices.

In the absence of clear guidance and regulation from higher levels of government, it is important for the CoGB to monitor the political and policy environment and regularly analyse what changes are underway.

Many local government staff, including CoGB staff, experience the absence of clear guidance and regulation from higher levels of government as a key barrier to adaptation. The CoGB appears to be proactive and effective in liaising with state agencies and partner organisations and monitoring ongoing policy developments (evidenced, for example, by successful grant applications). To maintain and further strengthen its understanding of the adaptation policy context and make this information accessible to staff, the CoGB may want to consider additional ways for communicating developments in the policy context internally and exchanging these with partner organisations through regular communication.

Establishing effective governance

Effective governance is one of the key success criteria for making adaptation work across an organisation.

An organisation as large and diverse as a city administration will always face difficulties with ensuring all voices are heard and all staff members are engaged in adaptation, to appropriate degrees. Investing time and effort in setting up a viable and effective governance structure can be instrumental in facilitating adaptation.

At the CoGB, adaptation activities have been kicked off from within the Sustainable Environment Unit, reaching out to other parts of the organisation. This has proven to be an effective approach in the early stages.

However, for adaptation to succeed and be effective into the future, the CoGB may want to discuss what role the Sustainable Environment Unit plays in the future vis-à-vis other business units. Setting up a cross-organisational working group for adaptation is an important first step for ensuring broader engagement and accountability. The CoGB may want to develop clear terms of reference for the working group, including a regular meeting schedule, working group milestones, and a communication plan. Developing an organisation-wide policy position on climate change for the CoGB has been identified by research participants as one possible activity for the working group. As part of this, it may also want to discuss to what extent elected members of Council are to be involved in adaptation, and for what purpose.

Setting objectives

Setting clear, specific feasible objectives is critical for focusing the organisation's adaptation efforts to maximise adaptation benefits for priority areas, in alignment with organisational goals.

The CoGB is not at a stage yet where it appears possible or urgent to set specific adaptation objectives. Ideally, setting objectives requires that a number of conditions are met, such as the organisation having an understanding of climate change risks and opportunities; agreement on an adaptation planning framework and process, as well as clarity on the internal governance of adaptation.

However, it can be assumed that both existing organisational knowledge on climate variability and climate change impacts for the Loddon Mallee region and the efforts spend on determining the purpose and scope of adaptation provides an important input into the discussion about adaptation objectives.

The CoGB may want to consider capturing initial ideas about adaptation objectives that have emerged over the past year and revisit them at a later stage.

Engaging and communicating on adaptation

Adaptation is a complex and a new concept for many individuals involved. Effective collaboration and communication is important to ensure that internal and external stakeholders understand the importance of today's adaptation efforts for the future.

The CoGB has successfully begun to communicate the purpose and relevance of climate change adaptation within the organisation. This is evidenced by the research participants' willingness in being involved and the progression of the discussion throughout this research activity.

The CoGB may want to further strengthen its internal communication by developing a simple communication plan, which lists key internal audiences, clear communication objectives, key messages, and concrete communication activities. This could be developed by the working group, or by a communications expert in close collaboration with the working group. Other activities suggested by participants, such as developing a policy statement and engaging with Councillors can be incorporated into the communication plan.

It is currently beyond the CoGB's scope to engage proactively with members of the local community on adaptation. As the adaptation process progresses in the organisation, the CoGB may want to revisit this, for example based on outcomes of the risk and vulnerability assessment and other key milestones.

Assessing the likely effects of climate change

The results of climate change assessments provide an important opportunity for interpreting climate change adaptation within the local and regional context and a starting point for organisation-wide discussion on adaptation needs and responsibilities.

The CoGB has already committed to a high-level in-house climate change risk and vulnerability assessment. As part of this process the City may want to explore how the climate risk and vulnerability assessment process and results can best be incorporated into the organisation's risk management systems.

The research highlighted that, while it is important to follow existing standards (such as ISO31000), it may also be useful to incorporate other aspects of climate change effects into the assessment. This may include considering how a vulnerability and/or resilience approach can be integrated into the proposed framework for risk and vulnerability assessment. Research participants found a resilience framing to be particularly useful for the CoGB's adaptation process, due to its positive connotations that encourages individuals and organisations to take action.

Identifying and prioritising adaptation options

Organisations that have a clear view of adaptation goals, objectives and the potential local and regional impacts of climate change can concretise their role by exploring possible adaptation options and prioritise these using a set of criteria.

The research has shown that the CoGB is not yet at a stage where it can discuss specific adaptation options. It can be expected that the in-house risk and vulnerability assessment will produce a set of climate-related risks and vulnerabilities, for which the organisation can then explore possible adaptation options.

When identifying adaptation options, it is important to ensure these are fully aligned with the overall goal of adaptation, its stated objectives, as well as with other organisational strategies. Adaptation options need to be looked at in a holistic manner, assessing their intended and potential unintended results for different stakeholders.

Deciding and implementing measures

A priority list of adaptation options may need to be assessed further, to gain an understanding of the expected social, economic and environmental costs and benefits associated with each option. Many techniques exist for assessing which options are most suitable and appropriate.

The CoGB is not yet at a point where it can decide on specific adaptation measures.

However, the CoGB may want to compile and seek internal comment on additional preparatory activities that are required to kick-start the adaptation process across the organisation (e.g. specific tasks to be completed by the cross-organisational working group).

Monitoring and evaluating

Progress and outcomes of adaptation measures need to be monitored against set objectives. To do this, it is important to consider early on in an adaptation process what indicators and processes will be used for monitoring and evaluating adaptation effectiveness.

The CoGB is not yet at a stage where it has developed clear adaptation goals, objectives or options. However, it is useful to discuss some aspects of a monitoring and evaluation system early on, as part of the scoping for an adaptation process. In particular, it may be useful to consider what time intervals the CoGB will apply for reviewing:

- Climate science information
- Risk and vulnerability assessment results
- Adaptation options and their priorities
- Adaptation measures already being implemented.

These considerations can influence the complexity of the monitoring and evaluation system. It also provides an opportunity for discussing who within the organisation is responsible for which aspects of such a system.

As part of identifying adaptation options, it can be useful to brainstorm potential qualitative and quantitative success criteria/indicators for monitoring.

References

City of Greater Bendigo Council Plan 2009-2012 (updated 2011) - http://www.bendigo.vic.gov.au/News_and_Information/Publications/Council_Plan

City of Greater Bendigo Risk Management Policy - http://www.bendigo.vic.gov.au/files/30f1d177-59ab-452f-b98f-9f2d0095e1c1/Risk_Management_Policy.doc

Victorian Local Sustainability Accord website - <http://www.dse.vic.gov.au/conservation-and-environment/sustainability/victorian-local-sustainability-accord>

Appendices

Appendix 1: Dates and topics of focus group discussions held at the City of Greater Bendigo

21 July 2011	Meaning of climate change adaptation
16 August 2011	Climate change assessment approaches and methods
13 September 2011	Setting adaptation goals
25 October 2011	Contextual data and information for adaptation planning
23 November 2011	Identifying feasible adaptation options
14 February 2012	Flexible adaptation guidance: The Adaptation Navigator web-based application

Appendix 2: City of Greater Bendigo climate change adaptation pathway

Municipality profile

Local authority name	City of Greater Bendigo
Municipality profile	Greater Bendigo is a major regional centre servicing the towns and rural areas of the Loddon region, about 150km north west of Melbourne. While still significant, traditional reliance on manufacturing has diminished in recent years, with the development of a strong health, education and retail sector in the city. Commerce, finance and government administration are also important activities. (Source: Department of Planning and Community Development, http://www.dpccd.vic.gov.au/localgovernment/find-your-local-council/greater-bendigo)
Population	102,373 (2009)
Area in km²	2,999
Key areas addressed in adaptation to date	<ul style="list-style-type: none"> • Intra-Organisational Collaboration • Defining the Scope for an Adaptation Initiative • Internal Engagement • Collaboration with External Partners • Understanding the Policy Context • Social Vulnerability Assessment/Analysis • Building the Business Case for Adaptation
Summary of approach taken	<ul style="list-style-type: none"> • Adaptation activities are conducted in alignment with the CoGB Council Plan, which references climate change and the need for adaptation, and the Community Plan • Accept climate science and climate change projections as a given • Adaptation is considered as a being mainly about organisational change, managing uncertainty, decreasing vulnerability and increasing resilience: to maintain effective local government services. • Exploratory, considered approach to adaptation, to ensure effectiveness of all steps taken. • Paying attention to communication and engagement across the organisation • Establish partnerships with research organisations • Sustainable Environment Unit to initiate adaptation process but develop broad engagement and ownership across the organisation

Climate change adaptation process to date

Description of activities to date	Activities	Time frame	Adaptation Navigator nodes
	<ul style="list-style-type: none"> • The CoGB has done a lot of work preparing for and responding to extreme weather events, but not in a fashion coordinated and labelled as 'climate change adaptation'. 	Up to 2011	Intra-Organisational Collaboration
	<ul style="list-style-type: none"> • Responsibility of coordinating the climate change adaptation planning process was passed on to the Sustainability Officer (Sustainable Environment Unit), to introduce the idea of adapting to climate change as an organisation-wide task. 	Early 2011	Defining the Scope for an Adaptation Initiative

<ul style="list-style-type: none"> The Sustainability Officer conducted adaptation activity mapping, to get an understanding of the different projects, initiatives etc. already underway related to adaptation. The goal was to demonstrate that adaptation wasn't an entirely new task to the organisation and that CoGB has adapted to different climatic circumstances for some time. Examples included (but are not limited to): <ul style="list-style-type: none"> Establishing drought tolerant grasses and efficient irrigation for open spaces Working with business community on energy security issues Developing policy to support biolinks across the landscape Reviewing infrastructure design, and Identifying individual community members most vulnerable to extreme events. 	Early 2011	Internal Engagement
<ul style="list-style-type: none"> Becoming involved with research partners through the VCCCAR Framing Adaptation project, to explore adaptation process and increase staff capacity for adaptation. Researchers provide mentoring on adaptation. 	May 2011 to April 2012	Collaboration with External Partners
<ul style="list-style-type: none"> Communicating carefully within the organisation about the scope and nature of adaptation, to ensure staff become engaged early on and contribute to achieving outcomes. Emphasis was placed on the need for learning and culture change within the organisation. 	Since early 2011, ongoing	Internal Engagement
<ul style="list-style-type: none"> Participated in research on barriers to adaptation in local government, conducted by the Municipal Association of Victoria (MAV) and the Victorian Department of Sustainability and Environment (DSE). 	April to May 2011	Collaboration with External Partners
<ul style="list-style-type: none"> Produced an overview paper for the CoGB's Organisation Leadership Team (service unit managers) to summarise: <ul style="list-style-type: none"> the current policy context for adaptation, the current state of climate projections, implications of climate change impacts for the City, the City's responses to date, and next steps in the adaptation process. 	May 2011	Understanding the Policy Context
<ul style="list-style-type: none"> Organised a lunch time presentation and discussion on climate change risk management for all interested City staff, to engage widely across the organisation and 'test' for the range of staff that this topic would attract. 	November 2011	Internal Engagement

	<ul style="list-style-type: none"> Obtained funding through the Victorian Local Sustainability Accord for staff training on 'service delivery in a changing climate', jointly with neighbouring councils in the Loddon Mallee region. The funds were used to conduct two workshops on climate risk assessment. These helped to raise awareness, increase buy-in to adaptation, and provided an opportunity for the organisations involved to learn about how to best engage with people on adaptation. 	December 2011	Collaboration with External Partners
	<ul style="list-style-type: none"> Obtained funding through the Victorian Local Sustainability Accord (Round 5) for a regional project: 'Creating a climate resilient southern Loddon Mallee' to understand the current and potential future vulnerability to climate change in the region. This includes identifying and locating vulnerable individuals and groups. 	January 2012 onwards	Social Vulnerability Assessment/ Analysis
	<ul style="list-style-type: none"> Preparing a briefing paper and meeting with the Executive, summarising the proposed course of action on adaptation, which will integrate adaptation with the organisation's risk management standards and processes. 	February 2012	Building the Business Case for Adaptation
	<ul style="list-style-type: none"> Setting up a cross-organisational working group on climate change adaptation, to lead an in-house climate risk assessment and support the development of the organisation's climate change adaptation process. 	March 2012	Intra-Organisational Collaboration

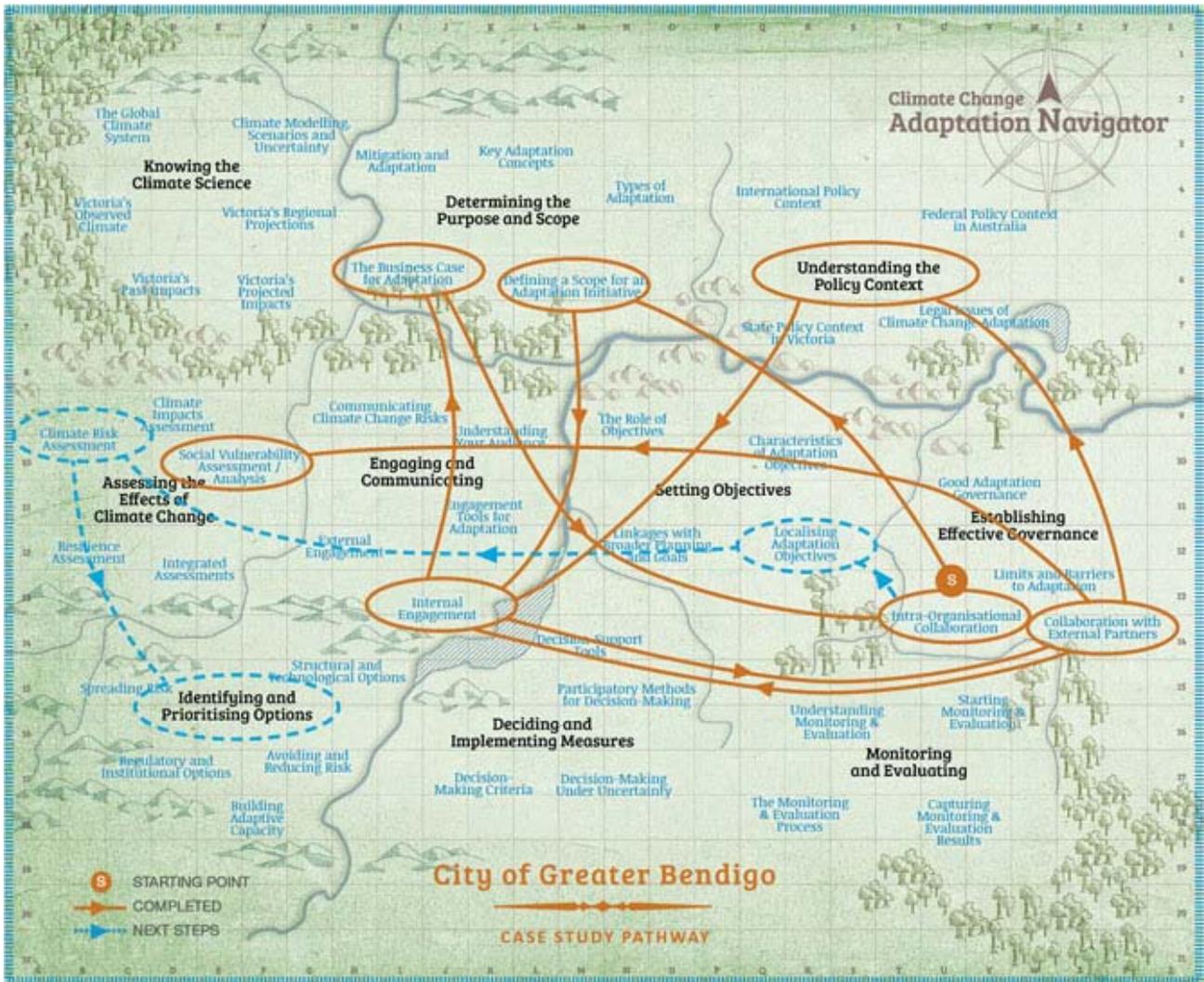
Lessons learned

Main successes to date	<ul style="list-style-type: none"> Developing ways to communicate about climate change adaptation that are relevant to providers of a wide range of local government services. Recognising that becoming more adapted is just as much about engagement, relationships and capacity building as it is about a formal planning process and strategy development. Gaining capacity and direction through collaboration with research providers and other local governments in the region. Having the opportunity to introduce the principles and components of adaptation planning to a range of staff before actually developing the organisation's adaptation plan.
Main challenges and strategies for overcoming these	<ul style="list-style-type: none"> Achieving increased resilience to climate change of the organisation without adding to the work of the organisation, but changing the way it does things. A strategy to achieve this is integrating adaptation into existing risk management practices.

Next steps

Description of planned activities	Planned activities	Time frame	Adaptation Navigator nodes
	<ul style="list-style-type: none"> Developing a framework for the CoGB climate change adaptation process, including continuous identification and treatment of risks and vulnerabilities. 	June 2012	Localising Adaptation Objectives
	<ul style="list-style-type: none"> Undertake in in-house, high-level climate change risk and vulnerability assessment based on the ISO31000 standard risk management approach, to identify organisational risks and vulnerable groups among the people served by the CoGB. 	March - June 2012	Climate Risk Assessment
	<ul style="list-style-type: none"> Develop preliminary actions based on first-cut risk assessment. 	March - June 2012	Identifying and Prioritising Options

Appendix 3: Graphical representation of case study pathway



Current as of: 24 June 2012