

Scenarios for Climate Adaptation

Project Overview

The *Scenarios for Climate Adaptation* project aims to strengthen knowledge about the most effective ways to develop and use scenario based strategies to improve climate change adaptation decision making, drawing on the recent experience of Victorian climate adaptation policy makers and practitioners. The project has been funded by the Victorian Government through the Victorian Centre for Climate Change Adaptation Research (VCCCAR) and is being undertaken by an interdisciplinary and multi-institutional team led by Professor John Wiseman at the University of Melbourne.

Understanding and managing complexity and uncertainty is one of the greatest challenges facing climate adaptation policy makers and practitioners. The long time frame over which climate change will occur, the diversity of potential impacts and the complexity of interacting social, economic, political and environmental drivers have highlighted the deficiencies of traditional linear planning and decision strategies. Scenario based approaches are therefore being used by an increasing range of Victorian, Australian and international government and non-government organisations as a key tool in addressing this challenge.

The rapidly expanding use of scenarios for climate adaptation has not as yet been accompanied by an extensive program of systematic evaluations (Wilkinson and Eidinow, 2008). This means that there is only limited understanding of the strengths and weaknesses of the many potential approaches and methods. To maximise the value of scenario planning it is crucial that policy makers are clear about the outcomes that scenarios can deliver and that they can apply a scenario approach that best fits their purpose, informed by a clear, shared understanding of the aims, role, strengths, weaknesses, risks and opportunities that each approach represents.

The *Scenarios for Climate Adaptation* project aims to help meet this challenge by gathering and synthesising learning about the development and use of climate adaptation scenario strategies in order to produce a concise, practical guide for climate adaptation policy makers and practitioners.

Scenarios as tools for policy making and planning under conditions of complexity and uncertainty

The Intergovernmental Panel on Climate Change (IPCC) defines a scenario as ‘a plausible and often simplified description of how the future may develop, based on a coherent and internally consistent set of assumptions about driving forces and key relationships’ (IPCC, 2007b). A recent Scottish Government report also usefully notes that ‘scenarios are alternative descriptions or stories of how the future might unfold. They compile information about divergent trends and possibilities into internally consistent images of plausible alternative futures’ (Scottish Government, 2006).

Originating in military and corporate strategy, scenario planning has been increasingly used by private and public sector organisations over the past 30 years to identify options and decide priorities in the context of uncertain future conditions and events (Varum and Melo, 2010). This

emphasis on informing decision making under conditions of uncertainty distinguishes scenario planning from forecasting, which has a narrower focus on predicting likely futures. As pioneering scenario practitioner Peter Schwartz notes ‘the objective of good scenarios is better decisions not better predictions’ (Dearlove, 2002).

Scenario based strategies can provide policy makers and practitioners with valuable tools to consider and analyse a diverse range of future trends, contexts, risks and opportunities (Wilkinson and Eidinow, 2008). Informed by quantitative and/or qualitative evidence, scenarios also have the capacity to illuminate potentially critical ‘unknowns’, to encourage organisations to think ‘outside the square’ and to challenge taken for granted assumptions about the future (Kahn, 1967).

A useful typology of scenario strategies developed by Borjeson et al (2006) classifies scenario approaches in the following way:

- **Predictive scenarios (what is likely to happen):** Scenarios that represent a range of probable futures, developed using quantitative data, expert advice and assessments of probability.
- **Exploratory scenarios (what could happen):** Scenarios that represent potential future events and conditions. Not constrained by probability assessments, they draw upon diverse opinion, knowledge and experience and incorporate novel elements and high levels of uncertainty. They can be useful in testing the assumptions and mental models of scenario stakeholders.
- **Normative scenarios (what ideally should happen):** Scenarios that represent ideal outcomes, such as successful adaptation. Their aim is to provoke exploration of the conditions and decisions needed to make the vision in question a reality.

This project will draw on Borjeson et al’s typology as well as work by Fahey (2003), Parsons et al (2007) and others to develop a better understanding of the value and relevance of different scenario based approaches to climate adaptation.

The climate adaptation challenge

The IPCC (2007a) defines climate change adaptation as: ‘adjustment in natural or *human systems* in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities’. They go on to note that various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation. Different approaches to climate change adaptation reflect differences in:

- population scale (individual, household, community or societal);
- spatial scale (local, regional, national or transnational);
- time scale (short or long term intervention or effect); and
- governance arrangements.

Howden et al (2010) also usefully distinguish between adaptation responses on the basis of the extent of change envisaged:

- Practice changes: changes in behaviour and technology
- System changes: changes in the organisation of existing systems
- Transformative changes: development of completely new systems and/or elimination of existing systems.

A key aim of this project is to strengthen understanding of the usefulness of specific scenario based strategies for the achievement of particular climate adaptation outcomes. The project is also concerned to identify ways in which scenario strategies can contribute to maladaptation by inadvertently worsening climate change and its impacts for the adaptors or others (Barnett and O'Neill 2009).

Scenarios as tools for improving climate adaptation policy and planning outcomes

Faced with the multi-dimensional risks and uncertainties that climate change adaptation entails, policy makers are using a wide range of scenario planning methods to guide decision making (Carter et al 2007). Climate change and climate change adaptation scenarios can play an extremely valuable role in:

- clarifying trends and risks;
- engaging citizens and stakeholders;
- provoking and informing debate;
- developing common understandings;
- expanding the range of options to be considered; and
- evaluating likely policy impacts (Wilkinson and Eidinow, 2008; Collins and Ison, 2009; Scenarios for Sustainability, 2010).

It is important to note that the use of scenarios for climate change adaptation decision making encompasses both climate change trend scenarios (i.e. data and trends in relation to climate change exposure and sensitivity) and climate change adaptation drivers and determinants (i.e. data and trends in relation to key factors affecting the adaptive capacity and resilience of places, population groups, infrastructure and institutions).

Significant opportunities exist for using scenario based strategies to better integrate information from a broad range of fields and disciplines including demography, economic development, health and social policy. Yet, as the European Environment Agency (2009, p.5) recently concluded, 'the shortage of research on scenario planning and its influence means that there is limited guidance on how to optimise scenarios, in terms of both outputs and uptake by policy-makers'. Bishop et al (2007) and Blackman (2007) make this point even more strongly, stating that there is an urgent need to help policy makers avoid confusion and navigate the rapid proliferation of scenario based decision making strategies.

Project objectives

Informed by recent Victorian and Australian experience, this *Scenarios for Climate Adaptation* project will produce a report and guide book addressing the following questions:

- In what ways are scenario based strategies relevant and useful for climate adaptation policy making and planning?
- In what ways are scenario based strategies being used to improve climate adaptation decision making, engagement and planning?
- What are the strengths and weaknesses of various scenario based strategies?
- What are the key success factors for the effective use of scenarios to improve climate adaptation outcomes?

Project methodology and timetable

Key tasks for this project include:

- Developing a conceptual framework and typology of scenario based approaches, strategies and methods for improving climate adaptation outcomes.
- Undertaking a stocktake, policy mapping and needs analysis of Victorian climate change adaptation scenario strategies.
- Producing a *Climate Change Adaptation Scenario Guidebook*.

Key elements of the project methodology and indicative timetable include:

- Review of relevant Australian and international literature: June-September 2010
- Consultation questionnaire and interviews with Victorian climate adaptation policy makers and practitioners (including scenario developers and users): July-September 2010
- Workshops with Victorian climate adaptation policy makers and practitioners: (including scenario developers and users): September-November 2010
- Seminar exploring critical perspectives on using scenarios to improve climate adaptation outcomes: November- December 2010
- Draft Report: Scenarios for Climate Adaptation: January-February 2011
- Draft Guidebook: March-April 2011
- Roundtable discussion April-May 2011
- Guidebook launch: May-June 2011

Project team

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