

Regional Climate Change Adaptation Strategy Guidance Note 5

Exploring Multiple Futures

Purpose

It is important to explore multiple futures in adaptation planning – because we simply cannot project the precise magnitude and rate of climate change, and this challenge is pronounced by its interaction with multiple social and economic drivers of change. Exploring multiple futures can enable us to test our thinking and explore the robustness and flexibility of different adaptation options and actions.

Regional climate change adaptation strategies are being developed to respond to current and projected climate (and other) change. The uncertainties in our ability to project the precise magnitude and rate of the future climate are particularly pronounced at a local scale^{1,2} because of local variations.

Even greater uncertainties stem from social drivers, including our responses to climate change, and changing and diverse value systems. Other complex social and ecological interactions also must be taken into account. Because of these compounding uncertainties, adaptation planning that uses a small number of climate change scenarios, a single ‘most likely’ future, or ideas of ‘optimal responses’ is high risk. Such plans also risk developing the wrong options over the long term or even making matters worse. As such, it is essential to test our thinking and plans against multiple plausible futures in order to consider the robustness and flexibility of different adaptation options that appear to perform well across those multiple possible futures.

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Important Considerations

It is critical to recognise that activities to explore multiple futures are not about predicting what will happen or even what people think should happen, but rather about exploring what they think *could* happen³. These processes should be a basis for facilitating discussions between diverse stakeholders and different kinds of knowledge e.g. local, cultural, and scientific or 'expert' knowledge about plausible futures.

Using such processes can also help explore the differences and commonalities among people's different values and preferred futures, as well as explore possible similarities and tensions between adaptation actions as they relate to local or regional contexts or issues⁴. In this way, exploring multiple futures are also a means of broaching difficult issues, including situations that are possible, but emotionally confronting or politically sensitive, and experiment with ideas and options. Like regional climate change adaptation strategies, a central purpose of developing and using scenarios of potential futures is the learning process, not the actual scenarios themselves.

Exploring possible futures allows people to see situations differently and is an opportunity to think creatively and stimulate out-of-the-box thinking. It is therefore important to create a supportive and safe environment for experimenting with ideas. Discussing new possible actions should be done before examining existing plans, so that people's ideas don't become constrained by what is already happening. In short, exploring multiple, alternative futures can help:

- Stimulate discussions
- Communicate the strategy
- Test proposed and existing actions for their robustness and flexibility
- Identify and map out strategic questions around possible tipping points and triggers for change that would require new actions or decisions
- Deepen exploration of the regional drivers and objectives.
- Reveal gaps or stimulate new insights and questions, which could require revisiting original objectives about what regions are seeking to maintain, shift, or transform.



Suggested Methods

There are numerous ways by which adaptation planning might explore a range of potential futures. The crucial factor is that *multiple alternative* futures are explored. These futures can (and in some cases should) be informed by the best available climate science for Victoria.

Here too, it's important to explore the range of potential climatic changes. Moreover, some sets of projections are particularly suited to certain purposes. For example, as the *Victorian Water and Climate Initiative* projections are particularly suited for water supply planning. See link <https://www.water.vic.gov.au/climate-change/climate-and-water-resources-research/the-victorian-water-and-climate-initiative>.

Victoria's Climate Science Report 2019 provides a synthesis of the best available climate change science and its implications. The report summarises the knowledge gained from the Victorian Government's ongoing investment in climate science, including the *Victorian Climate Projections 2019* and the *Victorian Water and Climate Initiative*. For a copy of the report see <https://www.climatechange.vic.gov.au/climate-science-report-2019>.

The Victorian Climate Projections 2019 (VCP19) developed in partnership with CSRIO, provide local-scale climate projections data for Victoria at a 5km scale. The projections cover average and extreme temperature and rainfall, relative humidity and evaporation to 2090s for moderate and high greenhouse gas emissions scenarios. The new research supports what we know from previous projections, but high-resolution outputs are important for Victoria due to the state's varied topography and long coastline and allow us to better understand changes in our alpine regions, coastal areas and agriculture regions. Projections are available at short time intervals which allows us to better understand extreme events, such as fire weather and localised intense rainfall.

Regional overviews of future climate projections can be downloaded below:

[Barwon Climate Projections 2019](#)

[Central Highlands Climate Projections 2019](#)

[Gippsland Climate Projections 2019](#)

[Goulburn Climate Projections 2019](#)

[Great South Coast Climate Projections 2019](#)

[Greater Melbourne Climate Projections 2019](#)

[Loddon Campaspe Climate Projections 2019](#)

[Mallee Climate Projections 2019](#)

[Ovens Murray Climate Projections 2019](#)

[Wimmera Southern Mallee Climate Projections 2019](#)

A technical report, publicly available datasets and guidance on how to use the information is also available alongside the regional overviews. See link <https://www.climatechange.vic.gov.au/adapting-to-climate-change-impacts/victorian-climate-projections-2019>

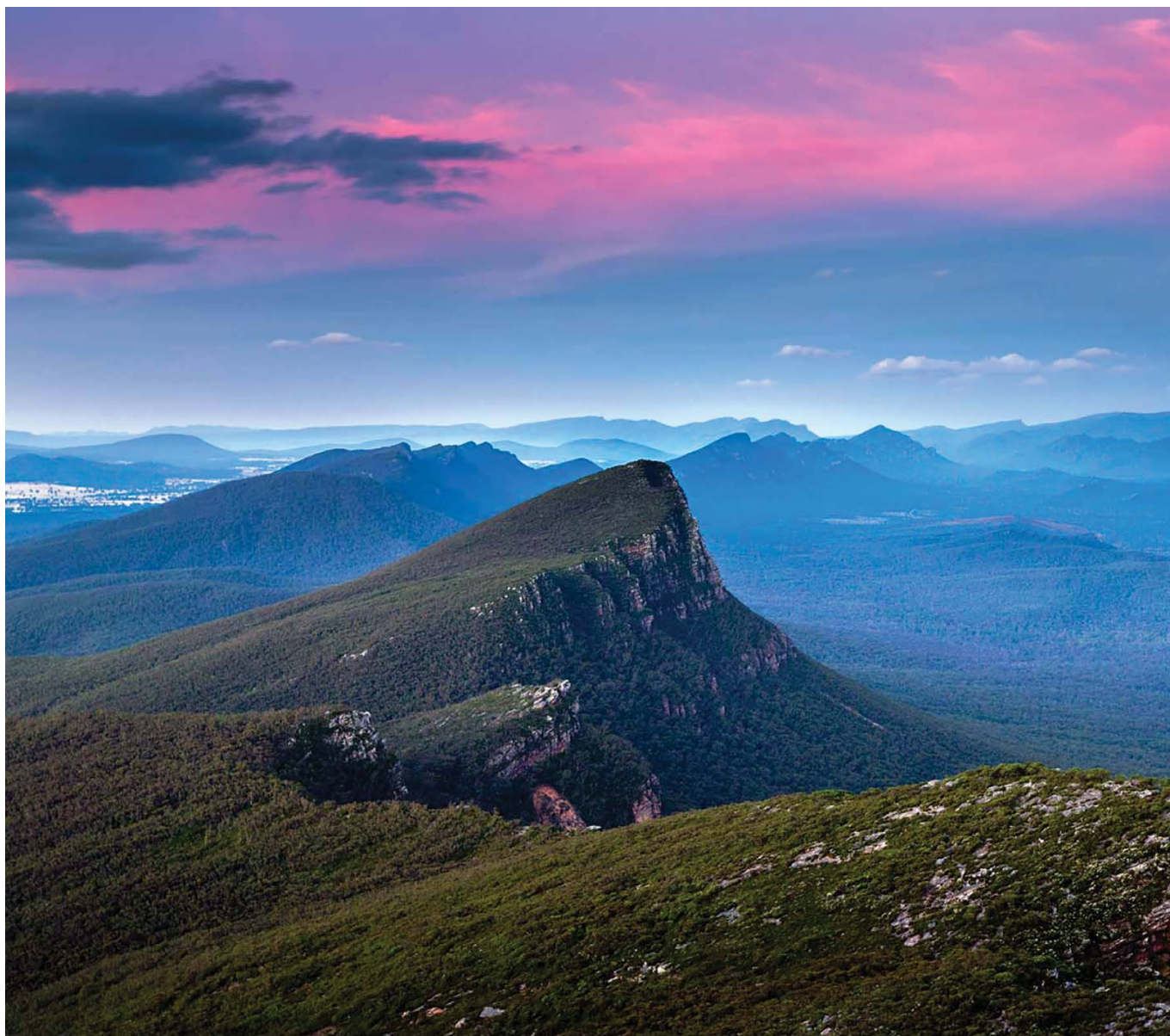
While the climate science provides an excellent foundation for building scenarios about how climate change could impact the region, building a deeper understanding of local vulnerability and opportunities to reduce it can only be explored when additional complex social and ecological interactions are also considered.

In order to consider these complex interactions within your region or local area, an exploratory approach to developing tailored scenarios is suggested. The following includes some approaches to consider for such work.

Using scenarios for adaptation planning

At the broadest level, the scenarios you develop should be used in a context in which a range of different types of discussions and strategic thinking can take place. More specifically, scenarios can be used to:

- explore changes in values (how would the things you value change if we ended up with this future versus this future?)
- explore how different future states might come about? And what types of decisions would lead to each type of future?
- analyse current decisions and approaches – will the current approaches take use more towards the preferred futures or towards less desirable futures
- explore ‘what if’ questions – to explore questions of major system change. E.g. what if there was a new dam built here? what if there was a high speed rail developed linking our town with Melbourne? What if there were three major bushfires in a row? Or a viral pandemic?
- reveal assumptions – what are the big assumptions we are making about the future in our current planning and management



1 Developing narrative-based scenarios

There are also many approaches to developing scenarios. Selection of the most appropriate method should be based on factors such as the purpose for which it is being used, the expected level of stakeholder participation, the intended audience, and available resources⁵.

The Victorian Centre for Climate Change Adaptation Research's (VCCCAR) comprehensive guide to scenario planning can help identify the best approach for each context. http://www.vcccar.org.au/sites/default/files/publications/SPCA_GUIDEBOOK_FINAL_200711.pdf

That guide points out that scenario planning is probably the right tool where:

- The focus issues involve many complex variables and uncertainties
- Relevant information is lacking
- There is a strong possibility that key variables are not known, or unforeseen events may occur
- Decisions made may have major implications for decision-makers in 10 years or more
- There are many conflicting views on what should be done about a strategic challenge
- There is a lack of confidence in the value of other decision-making tools to help

There are several ways to approach the development of narrative based scenarios. A couple of approaches are explored below. Remember you can refer to the VCP19 impacts for your regions to help explore your scenarios.

1a Deductive 'Two by two' scenario approach

This approach focuses on identifying two key uncertainties and using them to create four future scenarios. You then use deductive thinking to explore what other relevant social, economic, environmental and cultural trends and drivers might be doing in each scenario.

The strengths of this approach are that, with strong facilitation, the scenarios can be developed through participatory processes that draw upon the experience and expertise of those involved in the scenario planning process. The approach can be modified to work in a 'top down' or 'bottom up' way.

The process includes identifying the two uncertainties you will focus on and use to differentiate the scenarios. You then plot these on two axes. Then each scenario is fleshed out by discussing what other things might be characteristic of each scenario.

Approach

- Deductive two x two scenario development

Method

- 'Top down' or 'bottom up'
- Develop set of four scenarios by examining two key uncertainties

Strengths

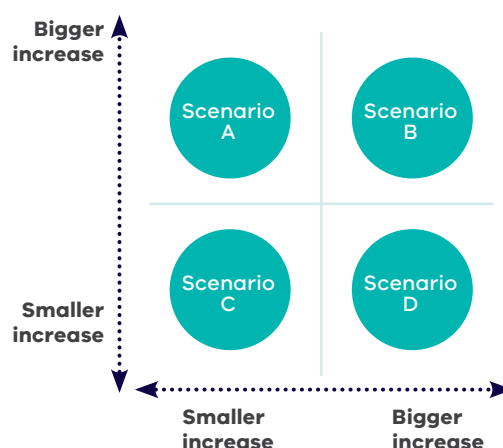
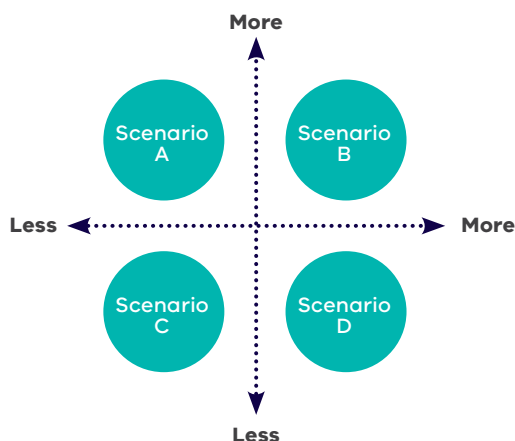
- Developed through participatory processes
- Draw on experience and expertise in the room
- Can be tailored to specific sectors, geographic areas and address stakeholder specific issues
- Does not require extensive documentation – can be 'single use scenarios'

Weaknesses

- Can become very complex for multi-sectorial analysis
- Requires strong facilitation

Two x two approach

Plot two key uncertainties in the x and y axis





1b The Inductive approach

Another approach to scenario development is what is called 'the inductive process'⁴. This is the more classic brainstorming of different scenarios and selection of four of the most relevant. This technique is less straightforward but can be very useful when the key uncertainties do not stand out very clearly⁴. This approach usually considers more than 'just' climate change, to include other relevant social, economic, environmental and cultural trends and drivers.

The key steps typically involve mapping and prioritising key trends and drivers, leading to agreement on a small number of plausible scenarios⁶. These scenarios very often consider other relevant social, economic, environmental and cultural trends and drivers⁶. Here the process can draw on the work undertaken to understand and describe the region/sub-region.

It could be done by asking how might climate change affect the system/asset over the long term, such that it transforms how people live there or manage the assets? In adaptation planning, it is as important to explore positive potential futures and not just the more typically negative portrayals.

At least four skeletal scenarios are drafted and then elaborated to each consist of a specific logical narrative – what happens and why, through what series of hypothetical events (this event leads to that event, etc.) and with what consequences – they begin to highlight opportunities and threats⁴. These four scenarios are then written up into narratives of hypothetical futures and given names 'to make the stories come alive'.

Approach

- Inductive Narrative Scenario Development

Method

- Typically 'top down'
- Development of 3-4 scenarios with different sets of variables

Strengths

- Can be tailored to very specific circumstances for in-depth exploration of system.
- Once developed can be used for multiple purposes.
- Can include an idealised future.

Weaknesses

- Requires significant time and resources to develop
- Climate impact scenarios could only be generalised to large areas
- May not address issues of concern for stakeholders

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2 Developing Alternative Futures Narratives

Alternative Futures Narratives are based on Adam Kahane's explorative approach³ and create a set of future scenarios that can be used in discussions for planning. They are not intended to be predictive and focus on a core question of 'what different states could this system/place be in the future?'

The question is deliberately broad and open to allow people to imagine different states. It is again important to frame this method as explorative, not predictive or an extrapolation of current trends. It emphasises exploring what could happen rather than what will happen or what should happen (which are often the focus on traditional scenario approaches).

The goal is to come up with narrative for a range of alternative futures that describe the future, what it's like and how different aspects of the futures interact. Then you can use these narratives to explore what could be done to reach a particular future or avoid another.

When developing the scenarios, it is important to use a broad time frame beyond the foreseeable future but you don't need to focus too specifically on the exact time. This is usually 10+ years into the future and preferably 20-30 years forward. It is important here to remind participants that you are not trying to predict the future out to that time frame, rather you want to explore possible futures.

Thinking about and exploring possible futures in such a broad sense can be tricky. If people are stuck it is useful to have some major system drivers to stimulate thinking. For example, climate, technology, population and demographics. These can be explored individually or as a set, which allows people to analyse and integrate them to explore the linkages between drivers. i.e. a hotter, drier system is likely to be less attractive as a place to live so population may decrease.

Sources of information that could help inform such thinking could include CSIRO's [Megatrend analyses](#), and similar work by [Ernst and Young](#), and [Price Waterhouse Coopers](#). Equally, some of the scenarios developed by some of Australia's banks, or those by Victoria's Water Authorities may also be useful.

Once you have collectively developed several alternate future narratives and possible futures have emerged you can spend some time fleshing them out. You're aiming to create consistency in language, focus and description that the futures can be broadly compared later.

Depending on the wider planning process you're using, the alternate futures you make can be grouped and organised into possible (the widest set), plausible (those that are more likely than the widest possible) and preferred (those that are more desirable) to give some sense of orientation to discussions. This becomes important in later discussions about adaptation measures in the current system (present day) and their influence on the trajectory of the current system (which of the possible futures are these decisions likely to move us toward?).

It is again important to frame this method as explorative, not predictive or an extrapolation of current trends. It emphasises exploring what could happen rather than what will happen or what should happen (which are often the focus on traditional scenario approaches)

Evaluating actions

Alternate futures can be used to evaluate different proposed actions:

- How might this action influence the trajectory of the system?
- Could the action move us towards a more desired alternate future or away from an undesired future?
- What other action or conditions are needed to support the desired change toward the preferred future?
- Would this action be robust (and flexible) under each of the futures? What would we need to monitor in order to know when we might be reaching its limit? etc

Evaluating the alternate futures themselves

It may also be worth exploring how participants think the potential futures may change if we had other stakeholders in the room, and which groups might have a different perspective on the future. Multiple sets of futures could be developed (and compared) by different groups.

Reflection/learning process

- What has been learned during this work about the planning process, the people, or region?
- Do insights from this work change what we know (or thought we knew) about the region or adaptation dilemmas?
- How have you documented what has been learned?
 - For example, Did the process identify stakeholders that have not yet been involved in the planning? Do these people need to be engaged or invited into the process? How might they be approached and engaged?
- What implications does any new knowledge developed during this work have for the previous work – including the strategy's vision, objectives, goals and description of the region or sub-region?
- Who has participated?
- Who was missing?
- What options did different stakeholders have for participation and did the targeted stakeholders think these methods were appropriate, considerate, safe, etc? (e.g. timing, language, resources, culture, ability, power asymmetries, organisational priorities)?
- Were stakeholders fully engaged in the process? If not, why not and what can be done?
- Were there any voices that dominated or voices that were not adequately heard? What can be done to (re)address this?
- What worked well and did not work well?
- Were there unexpected outcomes?



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