Thinking about the future

Climate projections help us to prepare to best manage risks and opportunities that climate change will bring by estimating the range of possibilities for the future climate.

Climate science to inform decision making

Victorian Climate Projections 2019 provides Victorians with information about the state's future climate, based on the best available climate science.

This provides a solid evidence basis for management, planning and policy decisions that will result in a more resilient Victoria.

Building resilience: top-down or bottom-up?

Making decisions and building climate resilience always involve a combination of top-down and bottom-up approaches.

Top-down approaches start with an analysis of potential climate change and climate impacts that can then be used to guide actions and decisions.

Bottom-up approaches start with the project or activity of interest and seek to reduce vulnerability to current and future climate impacts through analysing the factors and conditions that enable successful coping with threats.

Climate projections are used to inform the top-down approach. But to fully assess particular climate risks, a bottom-up analysis and assessment of the system must also be done.

Understanding what the future may hold

Climate change will affect us directly and indirectly. The direct effects on the systems as we understand them may be obvious; the indirect effects may be less so.

Other factors will also shape our future society and environment – including social change, economic markets and technological change.

So, although we can't give a narrow estimate of climate risk in the future, there can be an equally wide or even wider range of possibilities from other influences. Clearly it is important to consider potential change to other factors including: direct and indirect effects of technology, social and demographic changes, and changes to economic markets.

The examples over the page illustrate some of the effects and changes that may be experienced by different sectors.

Climate projections as a risk management tool

While climate projections give an estimate of change under the ongoing known climate influences, these estimates may be too conservative in some cases. The degree of confidence in rainfall projections is less than that for temperature. Also, there are some events and processes that are not perfectly understood that could lead to unexpected climate change or shifts (e.g. ice melt in Antarctic ice sheets; changes in the strength and periodicity of the El Niño Southern Oscillation).

It makes sense, then, to use projections as a guide to the future, and not to discount changes above or below the projected range when managing risk.

Managing uncertainty

Uncertainty should not stand in the way of action. You may know the range of possibilities but you're not sure exactly what will eventuate (the 'known unknowns'), or you may not even be sure of what is possible (the 'unknown unknowns'). These factors must be honestly assessed to make decisions under uncertain future conditions. This means factoring some uncertainty in to decision making. Climate projections provide a solid evidence base to assess plausible ranges of future change, but given the deep uncertainty about the far future, you should make decisions that are robust across the range of plausible futures, and do not lock in one path of action.

Factors influencing Victoria's future

	Example 1 Victorian wheat farmers	Example 2 Health services	Example 3 National parks and reserves
Direct effects of climate change	Changes of growing conditions for a crop; changes to conditions for pests, weeds and diseases	Higher incidence of heat-related illness, especially for vulnerable people; possibility of more injuries in fires and floods due to changing frequency of these events	Changes to growing seasons; changes to species ranges; increased bushfire risk; changes to conditions for pests, weeds and diseases; risks to visitors from extreme climate events
Indirect effects of climate change	Impacts on the supply chain for taking the crop to the customer; off-farm supply of required resources (e.g. irrigation supply, electricity, fuels, labour); changes to the competitive advantage of one region compared to another or one crop compared to another	Difficulties accessing patients in natural disasters; interruption to electricity supply; higher operating costs as a result of resources required to mitigate direct effects	Access difficulties due to natural hazards; changes to visitor numbers or habits; increased pressure on land use and challenges to reserved status
Technological change	New crop cultivars; automation; new irrigation techniques, etc.	Improved air quality surveillance; improved infectious disease diagnosis	New management techniques
Social and demographic change	People moving off the land; ageing population	Ageing population	Increase in number of older visitors; greater concentration of visitors during shorter periods of suitable weather
Economic markets	Imports; export opportunities; value-adding, etc.	Increased health insurance losses leading to higher premiums	Changes to visitor willingness to pay for access to national parks

More information
www.climatechange.vic.gov.au/vcp19

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