


# Regional Adaptation Snapshot Loddon Mallee



The Loddon Mallee is the largest of Victoria's regions stretching north-west from the outskirts of Melbourne to the Murray River and South Australian border. Included in the area are Echuca, Swan Hill, Mildura, Bendigo, Kyneton and Maryborough.

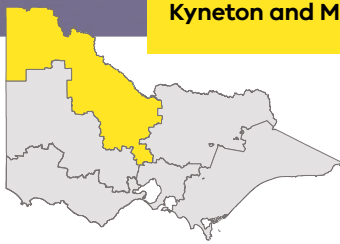
## What are the regional adaptation snapshots?

In 2017 the Victorian Government committed another \$9.3 million over three years to support regional solutions through the *Supporting our Regions to Adapt* program. To ensure this funding addresses the most critical needs, officers from the Department of Environment, Land, Water and Planning (DELWP) examined climate change projections and existing adaptation projects and strategies. Officers spoke to community members, businesses, researchers and government bodies in each region and assessed priorities for communities based on the impacts they're facing as well as their needs and values.

In early 2018, DELWP completed climate change gap analyses in six regions across the state. This report presents a high-level summary of the analysis in Loddon Mallee. It provides a snapshot of impacts, actions, gaps and priorities in the region.

**Climate change impacts are already being felt in Victoria—and successful adaptation requires solutions that are identified, owned and driven locally.**

**Within Victoria, communities, industry and local government are already leading the way.**



## State of adaptation in Loddon Mallee 2018

In late 2017, DELWP conducted a review of climate change adaptation in the Loddon Mallee region. We consulted a range of stakeholders to find out what's happening and what could be done across different areas, such as primary production, transport and tourism, healthcare and emergency services, cultural heritage, the built and natural environment.

The results showed the Loddon Mallee community recognises that climate change is already putting pressure on local water, energy and food production. While these pressures are different for each community, business or industry in the Loddon Mallee, the primary concerns were around the social economic and cultural impacts on the region's food and fibre industries. Alongside primary production, biodiversity and the environment, the tourism sector is also perceived as highly vulnerable to climate change.

In the Loddon Mallee there are over 90 adaptation projects that are currently underway, recently completed, or about to begin, predominantly targeting issues related to hotter weather, heatwaves, drought and bushfire risk.



## What we heard – regional priorities

**During the consultation, people identified many projects that could help the region adapt to climate change. Priorities that were identified across multiple sectors included:**

- » development of a state-wide approach to integrated regional vulnerability assessment on which monitoring, evaluation, reporting and improvement of adaptation action could be based
- » considering how adaptation projects can form part of broader, multi-disciplinary programs that would increase collaboration
- » exploring the potential to restructure funding models for longer-term, multi-disciplinary projects, including a variety of public and private funders

- » investigating opportunities to leverage existing local resources such as sustainability groups and networks for adaptation
- » exploring opportunities for on-going community engagement and participation in climate change adaptation

**Some priorities more specific to individual sectors included:**

- » greater awareness and support for the manufacturing sector about climate risk and business continuity planning
- » greater support for health community resilience programs
- » building the resilience of households through incentives and education about better adapted housing

- » better guidance to embed climate adaptation into road design and maintenance
- » taking an integrated approach to improving water efficiency on a regional scale
- » greater support for guidance about valuing ecosystem services and capturing social and environmental benefits to justify adaptation investment
- » disseminating up-to-date, practical information on species for revegetation and land and weed management under a changing climate
- » supporting Traditional Owners to contribute knowledge and services to adaptation activities

## Values and perceptions

### PRIMARY INDUSTRIES

Primary producers were concerned about energy volatility, particularly increased cost and reliability.

### MANUFACTURING AND MINING

The manufacturing sector valued capacity and skill development to embed climate risks into enterprise risk assessments and business continuity plans. The mining industry is concerned with energy security for their operation.

### HEALTHCARE, SOCIAL ASSISTANCE AND COMMUNITY

Concern around climate change impacts on mental health, changes in disease occurrence, heat-stress and lifestyle and wellbeing.

### EMERGENCY SERVICES

More resilience building needed to support communities and households for post-disaster recovery and pre-disaster preparation.

### TRANSPORT AND BUILT ENVIRONMENT

More detailed condition mapping needed to support infrastructure planning, for things such as shading and maintenance planning for increased temperature impacts.

### TOURISM AND THE NATURAL ENVIRONMENT

These sectors felt highly vulnerable to climate change. They require an integrated long-term strategic approach to adaptation planning for the


region's tourism industry and to ensure thriving and viable ecosystems.

### CULTURAL HERITAGE

Traditional Owners, as custodians of their land, are looking to partner with land managers and scientists so the land can provide for generations to come.

## Climate Change Adaptation in Victoria

To find out more about adaptation in Victoria

 [Victoria's Climate Change Adaptation Plan 2017-2020](#)

## Project spotlight: Be Cool in Gannawarra

The project looked at heat health in high risk clients (under 5 and over 65 years) in the Gannawarra Shire. It amended existing Home and Community, and Maternal Child Health assessments to include heat and vulnerability identifiers.

The project aims to increase the knowledge of Home and Community Care and Maternal Child Health care workers in assessing heat vulnerability in client's homes and the promotion of heat safety messages. Project results include a thoroughly reviewed Heat Health Plan that now incorporates the heat health checklists and heat packs for Home and Community Care and Maternal Child Health clients.

Training for using the checklists has now been embedded into the training cycle for Home and Community Care and will be revisited every summer. Media resources promoting heat health were also developed to inform vulnerable populations.

## Trends across Loddon Mallee Key demographic statistics



### Population

Approx. 310,000 people with projected growth 50% above the regional average for the state



### Employment

Healthcare and social assistance is the largest employer in the region



### Welfare

Number of people on aged pension and disability support pension is well above the state average



### Aboriginal Victorians

Highest proportion of Aboriginal people in Victoria and over 8,000 Aboriginal places of cultural significance



### Economy

Contributes \$18.35 billion to Victorian Gross Regional Product with Manufacturing and Agriculture the greatest contributors

## Loddon Mallee has been getting warmer and drier

In the future we can expect



Temperatures to continue to increase year round



More frequent and more intense downpours



Less rainfall in autumn, winter and spring



Fewer frosts




More hot days and warm spells



Harsher fire weather and longer fire seasons




# Climate change sector impacts in Loddon Mallee

	<b>PRIMARY PRODUCTION</b> 	<b>HEALTH AND HUMAN SERVICES</b> 	<b>TRANSPORT</b> 
<b>KEY CLIMATE IMPACTS AND RISK FACTORS</b>	<ul style="list-style-type: none"> <li>» Decreasing rainfall</li> <li>» Increasing temperature, hot days and fire weather</li> <li>» Highly dependent on continuous and secure water supply</li> <li>» Dependent on reliable and affordable energy</li> </ul>	<ul style="list-style-type: none"> <li>» Increasing heatwaves, solar radiation and fire weather</li> <li>» Increasing flooding</li> <li>» Higher rates than state average for obesity, chronic disease, disability and smoking</li> <li>» Above average proportion of people over 75 living alone</li> </ul>	<ul style="list-style-type: none"> <li>» Increasing flooding</li> <li>» Increasing hot days, heatwaves and fire weather</li> <li>» Heightened reliance on transport infrastructure due to distance from metropolitan centres</li> <li>» Lack of baseline knowledge about asset vulnerability and maintenance</li> </ul>
<b>POTENTIAL IMPACTS</b>	<ul style="list-style-type: none"> <li>» Earlier flowering and planting times</li> <li>» Changed distribution of pests and diseases</li> <li>» Farm business affected by bushfire</li> <li>» Changes in pasture growth</li> <li>» Decline in production due to reduced water availability and security</li> </ul>	<ul style="list-style-type: none"> <li>» More stress on health and emergency services</li> <li>» More heat-related deaths, particularly among the elderly and disadvantaged</li> <li>» Mental health effects</li> <li>» Risks to tourists unfamiliar with conditions</li> </ul>	<ul style="list-style-type: none"> <li>» Increased maintenance and retrofit costs</li> <li>» Disruptions to road and bridge infrastructure</li> <li>» Disruption to food supply</li> <li>» Disruptions to key community services such as emergency response, waste management and home care</li> </ul>
	<b>WATER</b> 	<b>NATURAL ENVIRONMENT</b> 	<b>BUILT ENVIRONMENT</b> 
<b>KEY CLIMATE IMPACTS AND RISK FACTORS</b>	<ul style="list-style-type: none"> <li>» Decreasing rainfall and water supply</li> <li>» Decreasing surface water, greatest in the south-east</li> <li>» Increasing temperature</li> <li>» Infrastructure vulnerable to fire and flood</li> </ul>	<ul style="list-style-type: none"> <li>» Decreasing rainfall</li> <li>» Increasing temperature, hot days and fire weather</li> <li>» Wetlands and surrounds threatened by increasing water demand</li> <li>» Some species, such as the Malleefowl, are particularly sensitive to bushfire</li> </ul>	<ul style="list-style-type: none"> <li>» Increasing hot days, heatwaves and fire weather</li> <li>» Increasing flooding</li> <li>» Loddon and Gannawarra municipalities highly vulnerable to fire and flood</li> </ul>
<b>POTENTIAL IMPACTS</b>	<ul style="list-style-type: none"> <li>» Increased pressure on water supply and security for irrigators</li> <li>» Increased incidence of algal blooms in waterways and irrigation channels</li> <li>» Increased energy costs associated with extended irrigation periods</li> </ul>	<ul style="list-style-type: none"> <li>» Amplification of existing threats to flora and fauna</li> <li>» Changes to habitat</li> <li>» Changing dynamics of invasive species</li> <li>» Damage to popular environmental sites</li> </ul>	<ul style="list-style-type: none"> <li>» Increased flood damage</li> <li>» Increased maintenance costs</li> <li>» Increased disruption to services</li> <li>» Increased threats to tourism infrastructure</li> </ul>

## Loddon Mallee Climate Ready Fact Sheets

More on projected climate impacts for Loddon Mallee

 [Climate Ready Loddon Mallee](#)

## Climate action in Loddon Mallee

We identified 93 climate action projects currently or recently implemented in Loddon Mallee, but we know there are many more. The majority were focused on actions to protect ecosystems and strengthen resilient agricultural practices. Renewable energy and energy efficiency projects and actions to build more sustainable and resilient communities also featured highly.

### Virtual Centre for Climate Change Innovation

The Virtual Centre for Climate Change Innovation (VCCCI) has been established to strengthen Victoria's role as a climate change leader.



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#### PROJECTS AIMED AT BUILDING SUSTAINABLE & RESILIENT COMMUNITIES

- » Knowledge
- » Planning
- » Climate Smart Buildings
- » Climate Resilient Infrastructure
- » Recycling and Waste Reduction

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#### PROJECTS IMPROVING EMERGENCY MANAGEMENT AND PREPAREDNESS

- » Bushfire and Flooding Preparedness
- » Heatwave Preparedness
- » Council Planning
- » Community Preparedness

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#### WATER PROJECTS

- » Water Basin Management
- » Water Sensitive Cities
- » Water Availability Forecasting

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#### RENEWABLE ENERGY AND ENERGY EFFICIENCY PROJECTS

- » Solar
- » Energy Efficiency
- » Waste to Energy
- » Vulnerable Communities

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#### PROJECTS WORKING ON BIODIVERSITY AND RESILIENT AGRICULTURE

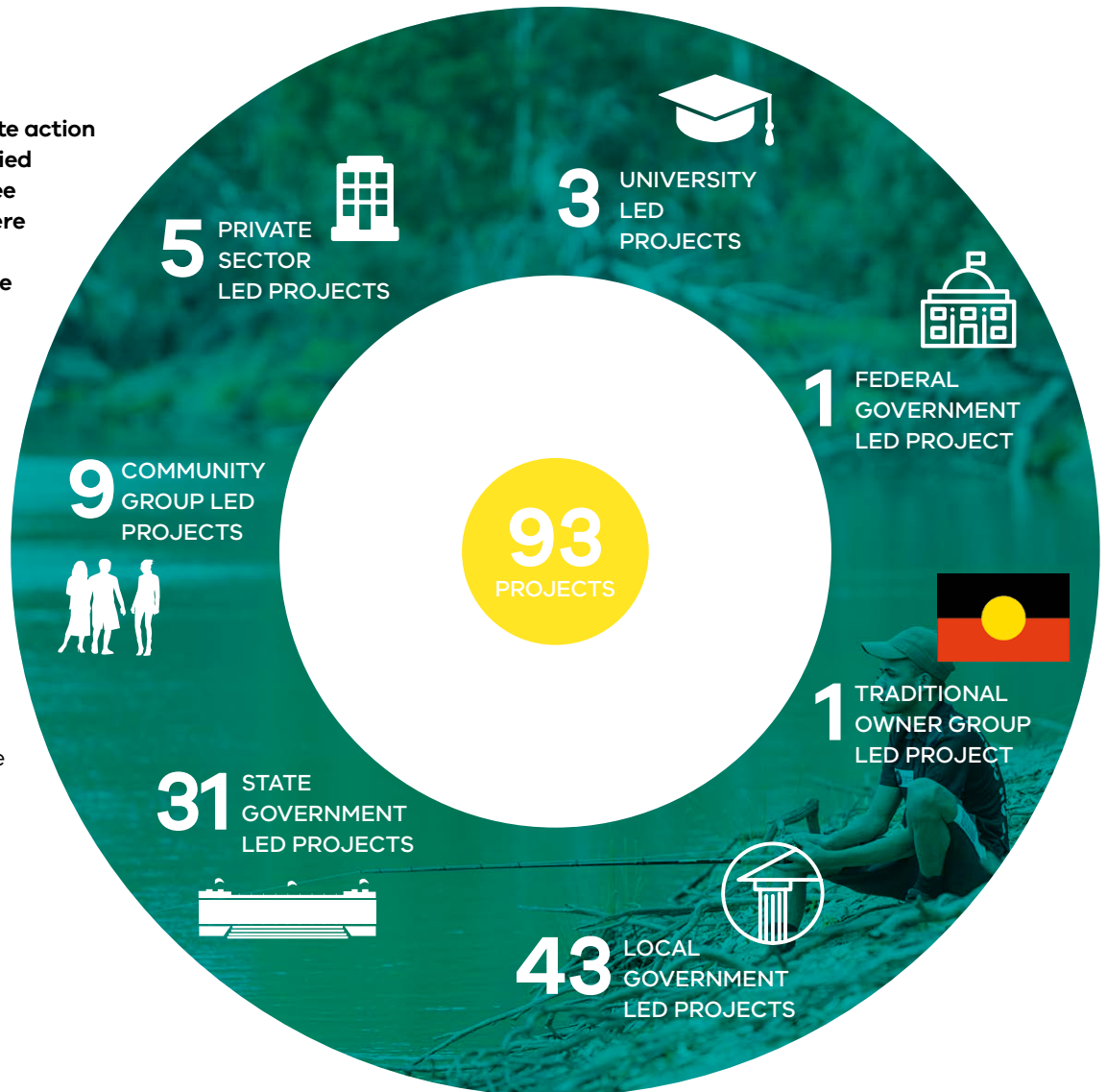
- » Eco-System Preservation & Regeneration
- » Preserving Cultural Heritage
- » Water Conservation and Drought Preparedness
- » Strengthening Resilient Agriculture Practices



## Project leads

Of the 93 climate action projects identified in Loddon Mallee the majority were led by local councils or state government agencies.

Community groups, such as Greening Mildura and Landcare groups, also led a number of important projects, while Deakin, Monash and University of Melbourne were also involved in different projects in the region.



## Project spotlight: Resilient Community Assets

Resilient Community Assets is a collaborative project between six councils to reduce the risks and impacts of climate change on street trees, and on community health during heat waves.

During the project, over 30,000 trees were assessed in several towns, creating a reliable and comparable data set and allowing for recommendations about appropriate species, treatments, replacement and planting locations. In its other half—supporting vulnerable people dealing with heat stress—the project established a heat wave plan template and online training for councils, as well as ‘HEAT Help’ packs for aged care clients.

The project was delivered by the Central Victoria Greenhouse Alliance on behalf of Central Goldfields, Buloke, Gannawarra, Loddon, Macedon Ranges and Mount Alexander shire councils.



## Key gaps in Loddon Mallee

**Taking into account the measures already under way—and focussing on regional, rather than state or national issues—here are some gaps in Loddon Mallee:**

- » key stakeholders require support to become more knowledgeable of climate change impacts and vulnerabilities
- » adaptation initiatives need to address the identified vulnerabilities
- » platforms that facilitate knowledge sharing and developing solutions are needed
- » adaptive capacity of vulnerable groups, communities or sectors has not been identified or fully understood
- » lack of information or data to make informed adaptation decisions
- » lack of farm demonstration sites, which can showcase renewable energy solutions and practical applications of adaptation actions
- » a lack of analysis on suitability of transport infrastructure to cope with climate impacts and the future intensification of agriculture
- » need for the government to work with key industry groups to improve assessment of climate risk as part of risk management and business continuity planning, including for small businesses

## Project spotlight: Plan2Farm

Plan2Farm is a training project for farmers in the Goulburn Murray Irrigation District and surrounds to develop a strategy for their farming enterprise. It involves a free planning session to complete a workbook, as well as support for up to three years to implement the plan. By understanding their vision, farmers are better equipped to make good decisions about on-farm irrigation modernisation, how much land they require, and the volumes of water they need.

The program was launched in August 2017 and will be available for about 400 families or farmers. It's funded by the state government and delivered by the Goulburn Broken and North Central Catchment Management Authorities in partnership with the Department of Environment, Land, Water and Planning, and the Department of Economic Development, Jobs, Transport and Resources.

## Enabling adaptation

The surveys we undertook as part of this project revealed that community education about climate change and associated impacts is an important enabler to successful adaptation. Leadership, both by the government and the private sector was also identified as a driver in educating the public and changing public perception. In those surveys, people told us the State has a role to communicate climate challenges and encouraging ongoing engagement and participation across the Region in adaptation. They said education enables successful adaptation.

Few councils in the region have adaptation plans or strategies about climate risk, and where they do, a key challenge is turning those plans into action. More will need to be done in the region around integration, connections and partnership between sectors including government. There is a need for better long-term funding models and provision of timely and localised data to decision makers.

## What's next?

The information gathered through the Loddon Mallee climate change adaptation gap analysis will inform priorities for action under the *Supporting our Regions to Adapt* program over the next three years.

This program will ensure government works in partnership with regional communities. We'll collaborate to support action that reduces the risk presented by climate change and help Victorians meet the challenges and act on the opportunities of climate change.

### FOR MORE INFORMATION ON WHAT IS HAPPENING IN LODDON MALLEE CONTACT:

#### **Geoff Caine**

Community and Partnerships – Program Manager  
Geoffrey.caine@delwp.vic.gov.au

#### **Dona Cayetana**

Community and Partnerships – Program Officer  
Dona.cayetana@delwp.vic.gov.au

#### **Erin Baxter**

Community and Partnerships – Program Officer  
Erin.baxter@delwp.vic.gov.au

Phone: 03 5430 4444

## Climate Action in Victoria

To find out about other  
Victorian Government  
climate actions visit:

[climatechange.vic.gov.au](http://climatechange.vic.gov.au)

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