



Goulburn Murray
Resilience Strategy
Taskforce



Goulburn Murray Resilience Strategy Update

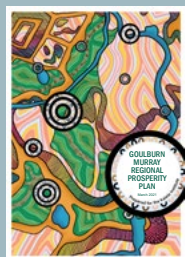
ADAPT | TRANSFORM | THRIVE

FINAL REPORT 2024








ACKNOWLEDGEMENT OF COUNTRY

The Goulburn Murray region acknowledges the Yorta Yorta, Dja Dja Wurrung, Barapa Barapa, Wamba Wamba, Wadi Wadi and Taungurung peoples as the Traditional Owners of the lands covered by this strategy. We acknowledge the resilience of Traditional Owners, who have for millennia lived and thrived through change on these lands. We continue to learn from them about what it takes to be resilient on this Country, and pay our respects to their elders, past, present and emerging. We acknowledge the contribution of regional Traditional Owners in developing the interventions within this strategy.

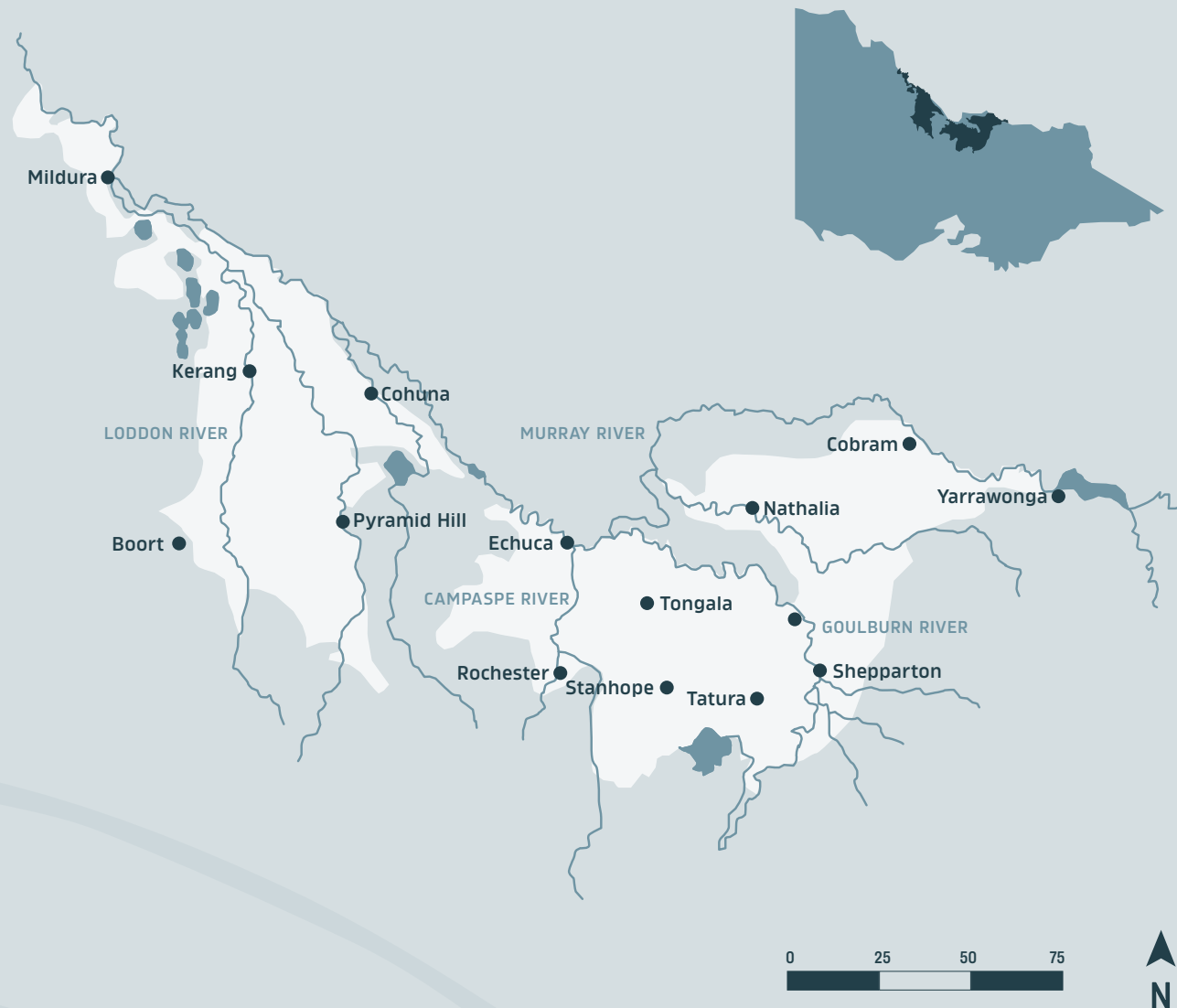


The Goulburn Murray Resilience Taskforces acknowledges the Goulburn Murray Regional Prosperity Plan as an aligned strategy that aims to build the economic parity and resilience for Aboriginal and Non-Aboriginal people in the region. The two strategies adopt similar frameworks of resilience and transformational investment to support the region's adaptive capacity and prosperity for all.

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Goulburn Murray Region



Foreword

The Goulburn Murray Resilience Strategy is a collaborative and innovative approach consisting of multiple initiatives that aim to ensure our region has the resilience to thrive in the face of social, economic and environmental change and uncertainty.

Originally developed in 2020, the Strategy was a response to the macro drivers of change impacting our region. These drivers included climate change, water recovery for the environment, technological advancements, market access, biosecurity risks, global pandemic issues such as COVID-19, energy challenges and the rapidly changing competitiveness of some of our traditional agricultural sectors. The goal was to provide an overarching vision and strategy to help our region manage the challenges and maximise the opportunities presented by these factors.

The Goulburn Murray Resilience Taskforce are the custodians of the Resilience Strategy and represent community, government and business. We come together regularly to collectively understand and progress the agenda set by the strategy. We have likened the Taskforce to an octopus. Our group is clever, curious with tentacles into many areas with strong connections locally, nationally and internationally which we use to make sense of and take opportunities in a complex and changing environment.

Four years on, our region continues to face many of these challenges, and new factors have emerged. These include the prospect of continued reduced water availability, more variable weather, and government commitments to net zero targets. The United States Inflation Reduction Act 2022 and the European Union's Carbon Border Adjustment Mechanism 2023 are already having impact on the Australian economy as the world transitions to a net zero, circular economy. To remain economically strong our region must rethink its reliance on historical agriculture practices and look for new agricultural land uses and alternative approaches, as well as opportunities in other sectors like construction and the circular economy.

The Goulburn Murray Resilience Strategy continues to focus on eight Resilience Principles and identifies five intervention streams which will build the region's resilience.

We know the future will look different for our Goulburn Murray region, and we must be prepared for it. Given the significant and ongoing change and disruption that lies ahead, an initiative like the Goulburn Murray Resilience Strategy is more important than ever. It brings government, business and community together to understand the issues and identify new opportunities. This Strategy puts our region on the front foot: equipped to anticipate, adapt to, and thrive in response to inevitable change.



Sarah Thomson
Chair, Goulburn Murray Resilience Strategy Taskforce

Resilience Strategy Foundational Contributors

During the development of this Strategy, we have spoken to and listened to the perspectives of more than 200 people from this region including community members, young farmers, Traditional Owners, dairy and horticulture farmers, niche industries, industry groups, processors, local government staff and councillors, and financial counsellors. Thank you to all these people who have an interest in working together to build the resilience of our region.

The following people contributed their time, experience and ideas to the development of the Goulburn Murray Resilience Strategy in 2020:

- Andrew Fennessy, Department of Environment, Land, Water and Planning
- Angela Avery, Agriculture Victoria
- Anita Smith, Regional Development Victoria
- Anthea Derrington, Agriculture Victoria
- Astrid O'Farrell, Campaspe Shire Council
- Austin Ley, Moira Shire Council
- Bec Caldwell, Goulburn Broken CMA
- Brad Drust, North Central CMA
- Brian Thompson, Department of Environment, Land, Water and Planning
- Carl Walters, Goulburn Broken CMA
- Chris Nicholson, Goulburn Broken CMA
- Chris Norman, Goulburn Broken CMA
- Clare Kiely, Department of Environment, Land, Water and Planning
- Colin Kalms, Greater Shepparton City Council
- Craig Dyson, Agriculture Victoria
- Daniel Hughes, Goulburn Valley Water
- Daniel Irwin, Goulburn Murray Water
- David Downie, Deakin University
- David McKenzie, Goulburn Regional Partnership
- Dougal Purcell, Agriculture Victoria
- Geoff Turner, Murray River Group of Councils
- Graeme Hannan, Goulburn Murray Water
- Greg Harper, University of Melbourne
- Helen Reynolds, Reynolds Farming, Goulburn Broken CMA
- Ian Haddow, Biomix
- Jason Russell, CVGT
- Jenny Wilson, Murray Dairy
- Joel Pike, Agriculture Victoria
- Kathy Richardson, Department of Environment, Land, Water and Planning
- Keith Oberin, Campaspe Shire Council
- Lachlan Rule, Beyond Zero Emissions
- Leah Smith, Department of Transport
- Leonie Duncan, Department of Environment, Land, Water and Planning
- Linda Kelly, Murray Dairy
- Liz Mann, Maize Association of Australia
- Mandy Coulson, North Central CMA
- Mardi Tress, Department of Jobs, Precincts and Regions
- Matt Hawken, Agriculture Victoria
- Matt Knee, Foote Waste
- Matt Nelson, Regional Development Victoria
- Megan Higson, Agriculture Victoria
- Megan MacFarlane, Goulburn Broken CMA
- Mike Jenz, Department of Environment, Land, Water and Planning
- Myles Gaffney, Department of Jobs, Precincts and Regions
- Nick Nagle, Goulburn Valley Waste and Resource Recovery Group
- Nick Raleigh, GoFarm
- Peter Foote, Foote Waste
- Peter Harriott, Greater Shepparton City Council
- Rebecca Pike, Agriculture Victoria
- Ross McPherson, McPherson Media Group
- Sam Birrell, Committee for Greater Shepparton
- Sarah Thompson, Goulburn Valley Water
- Steve Wilson, Goulburn Broken CMA
- Tom Saxton, Student, Shepparton

Goulburn Murray Resilience Taskforce Members

The role of the Taskforce is to understand and make sense of a dynamic environment and to advocate across government, business and community for resilience building actions.

In 2024 the Resilience Taskforce is made up the following members:

Community Members

- **Sarah Thomson (Chair)**
Former General Manager of Strategy, Governance and Finance Goulburn Valley Water. Business and finance analyst with substantive experience in International Aid.
- **John Ginnivan (Deputy Chair)**
Farm operator, civil engineer, former GMW Senior Manager, Member Agricultural Redevelopment Coordination Project Committee, Board member Kerang District Health, Board member Kow Swamp Land and Water Management Plan Committee.
- **Geoff Lodge**
CEO Goulburn Valley Community Energy, Director GVCE Mooroopna Solar Farm Pty Ltd, President Goulburn Valley Environment Group.
- **Cullen Gunn**
Founder and CEO Kilter Rural, Futures of Agriculture, 30 years experience advancing sustainable farmland, water and ecosystem management in Australia.
- **Zane Foott**
Operations Manager, Foott Waste Solutions.
- **Lana Young**
Manager, Speckle Cattle Park, MLA Red Meat Ambassador.
- **Samar Patel**
Manager, Operations Control and Maintenance, Goulburn Valley Water
- **Denis Flett**
45 years in the water sector and Goulburn Murray region. Foundation CEO of Goulburn Murray Water, Foundation Chairperson of the Victorian Environmental Water Holder, previous Victorian Commissioner on the Murray-Darling Basin Commission.

Organisational Members

- Geoff Turner, Murray Group of Councils
- Nathan Bibby, Goulburn Murray Community Leadership (Fairley)
- Chris Jansson, Committee for Echuca Moama
- Linda Nieuwenhuizen, Committee for Greater Shepparton
- Lisa Birrell, NorVicFoods
- Sharon Terry, Greater Shepparton City Council
- Fiona Smolenaars, University of Melbourne

Regional Partnership Members

- Elizabeth Capp, Goulburn Regional Partnership

Victorian Government and Authorities Representatives

- Michael Bretherton, Agriculture Victoria
- Leonie Duncan, Department of Energy, Environment and Climate Action
- Bonnie Glaister, Department of Energy, Environment and Climate Action
- Glenn Pomeroy, Regional Development Victoria Loddon Mallee
- Carl Walters, Goulburn Broken CMA
- Brad Drust, North Central CMA
- Mandy Coulson, North Central CMA
- Mark Bailey, Goulburn Murray Water
- Steven Abbott, Goulburn Murray Water
- Tim Russell, Regional Development Victoria Hume
- Anna Feldtmann, Regional Development Victoria Hume

Taskforce Initiatives

Taskforce initiatives achieved and supported in the past four years include:



Circular Economy

- Community Event with pre-eminent economist Ross Garnaut and John Hewson to discuss opportunities in the low carbon, low water, circular economy.
- Goulburn Valley Water and Aurecon discussion paper "Embedding Regional Resilience Using the Circular Economy".
- Community event with internationally recognised Professor Veena Sahajwalla on materials in the circular economy.
- Goulburn Broken CMA received funding from the Victorian Government for an investigation into regional circular economy activity, barriers and opportunities. Six critical steps were identified in the report, Driving a Circular Economy in the Goulburn Murray.
- Chair membership of Circular Australia Taskforce.
- Water Services Association of Australia Ozwater conference - Goulburn Murray Taskforce Chair speaking opportunity on place-based approaches to circular economy.
- Circular Economy Federal Advisory Group - meetings with Advisory Group members with a view to influencing the "place-based" approaches and submissions.
- Singapore International Water Week - abstract accepted "Net Zero Ready Goulburn Valley Renewable Hydrogen Ecosystem".



Leadership

- Regular Taskforce meetings of key regional players including business, community and government to consider resilience issues as outlined in this Strategy.
- Investment prospectus - worked with Councils in the Goulburn Murray Irrigation District to produce a website "Goulburn Murray - Invest, Grow, Prosper" for economic development.
- Fairley Leadership - resilience workshop for emerging leaders presented the Deakin modelling work and futures for the Goulburn Murray region.
- Young Water Leaders workshop - resilience theme.
- Advocacy visit to Canberra - combined effort with Kaiela Institute. Met with MPs and Ministerial Advisers to promote the Strategy and build awareness of the Taskforce.
- The Taskforce has been selected as a case study by a research team at Australian National University (ANU) investigating collaborative governance for green solutions. The ANU research on the Taskforce forms part of a broader international project (GoGreen) led by Roskilde University and funded by the Danish Independent Research Council (2022-2026).



Renewables

- Victorian government grants to Goulburn Valley Water for assessing hydrogen ecosystem and bioenergy feasibility in the region.
- Advocacy to Secretary of DEECW for support for bioenergy facilities, with a focus on biogas, to be situated at water corporations - in particular in Shepparton. This was a combined advocacy effort involving local business, the Water Services Association of Australia, and the Goulburn Resilience Strategy Taskforce.
- Raised the profile of the discussion paper "Renewable Energy and Conflict with Prime Agricultural Land", prepared by consultants RMCG, which avoided any adverse conflict.



Floods and Disaster

- Emergency Recovery Meeting - the Resilience Taskforce arranged a meeting with Emergency Recovery Victoria's (ERV) CEO to talk about the important lessons from the 2022 floods in Northern Victoria and what was still required for long-term resilience of the region in its recovery.
- Floods - a meeting was coordinated by Committee 4 Greater Shepparton immediately after the flood event with ERV CEO and team to discuss the Shepparton flood response and how to connect agencies.
- Floods - Taskforce Chair media and advocacy for CHOICE magazine's report "Weathering the storm: Insurance in a climate crisis".



Futures of Agriculture

- Consultants RMCG facilitated a project in partnership with Deakin University and the Goulburn Murray Resilience Taskforce to develop a systems model for the region and understand how global changes and regional resilience interventions might play out for this region.

A Resilient Goulburn Murray Region

In the coming decades, agriculture and land management within the Goulburn Murray region will face many major changes, including many challenges. To prepare for and confront an unpredictable future head on, the region will continue to build its resilience collectively. Resilience is more than survival. Resilience is about thriving in the face of change.

Vision: Thriving in the face of change

Regardless of future change, communities across the Goulburn Murray region wish to live in a place with the following characteristics:

TOGETHER

A region that has pride, wellbeing, cohesion and a spirit of resilience and ingenuity.

ATTRACTIVE

A region with desirable places to live, work and invest. With protected and healthy biodiversity, waterways and landscapes.

PROSPEROUS

A region with diverse industry, where agriculture continues to be an important part of the economy, supporting a range of primary, secondary and tertiary operations diverse in size, type and ownership.

Resilience = ability to cope with and thrive in the face of change

Broadly, 'resilience' is a cornerstone concept for managing an uncertain future. It is the capacity to cope with change while evolving in positive ways.

Resilience is not dogged maintenance of the current situation, or a return to the past, it incorporates a range of action including continuing to do the things that are working well (**PERSISTENCE**).

Even better, it can look like bouncing forward (**ADAPTATION**) or fundamental change (**TRANSFORMATION**).

The Goulburn Murray region faces continual change and acute stresses. Taking a resilience approach will help us to shape the trajectory of change, rather than being forced to respond in a particular unwanted direction.

Without resilience

If we don't work on the things that are known to build resilience, we are likely to find that our region will struggle to meet future change. This could result in unprofitable enterprises, diminished regional attractiveness, eroded natural assets, reduced wellbeing, and systemic failures.

INFLEXIBLE

Fixed systems where efficiency is paramount

DEFEATIST

It's all doom and gloom, why bother?

COMPLACENT

Let's just keep doing what we've always done

DISCONNECTED

Divided and disengaged industries, agencies, people, places

Finland has a self-identified national spirit called 'sisu', which loosely translates as 'pluck, grit, resilience'. It is a powerful spirit in a country that has survived and thrived with poor soil, harsh winters and geopolitical conflict.

Challenges and Trends



COMPLEXITY

The Goulburn Murray region is a complex and dynamic system with many interacting elements that influence each other in predictable and unpredictable ways. The system is changing. While some changes are outside our control (e.g. climate, global markets, technology), we can shape our response and create new opportunities. We can also reduce carbon emissions to mitigate the impact of global warming.



UNCERTAINTY

The world is changing more rapidly than ever before, making it difficult to predict exactly how our region will change in the future. Traditional approaches to planning are not well suited to these uncertain conditions.

The best way forward is to build our region's capacity to cope with a wide range of possible futures. We can do this by applying resilience thinking.



NET ZERO AND REGENERATION

The Victorian Government has set targets that provide a clear path to net-zero emissions: 28-33% by 2025, 45-50% by 2030 and 75-80% by 2035. It has also brought forward the date to achieve net-zero emissions from 2050 to 2045. There have also been local government commitments with Greater Shepparton, Campaspe, Moira and Gannawarra all adopting corporate reduction and net zero targets. The Loddon Mallee region has drafted a Zero Emissions Roadmap focused on unlocking significant emissions reductions across five key action areas – Leadership and Coordination, Energy, Transport, Agriculture, and Land – and identifying flagship regional initiatives that will aid the region's transition to net zero emissions. Meeting these targets will create new opportunities for jobs and industries including clean energy, land restoration, zero-emissions transport and the circular economy.

Our region has enthusiastic, innovative and early adopters of electric and renewable energy technology. The high number of very active community energy groups in the region demonstrates strong community support for realising the full potential of a sustainable energy future.



PANDEMICS

The COVID-19 pandemic had a major impact on Australia's economic growth. It exposed the fragility of global supply chains and highlighted the importance of sovereign manufacturing – as evidenced when a global shortage of urea increased fertiliser prices and threatened supply chains in Australia. In 2024, the pressure and economic tightening that resulted from the pandemic is still being felt across government, business and household budgets. The imposition of lockdowns and other restrictions also had a range of health effects beyond the virus itself, especially on mental health.

The pandemic changed the way people work, with more workplaces adopting a hybrid approach with a mix of home-based and onsite work. The pandemic has provided an opportunity to examine the local impacts of a global pandemic: to learn from the successes and challenges, use that knowledge to prepare for future events, and build agile and adaptable communities, businesses and industry.



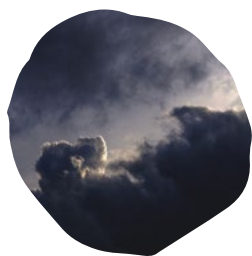
WATER AVAILABILITY

In the 20 years to 2024, available water resources in the Goulburn Murray region declined by almost 50%. This has been masked in recent times by a series of wet years that have replenished storages across the systems that provide the water security to the owners of water. The highly variable water availability is due to a combination of factors including climate change, water recovery as part of the Murray Darling Basin Plan and competition for water from outside the region that the “Water Market” in the southern Murray Darling Basin enables.

In response our region’s farmers have adopted flexible farm water management practices and improved water efficiencies although there are now many areas that have not been irrigated for a number of years. Renewed climate modelling shows there will be further changes to extreme events, both wetter and drier, which will have further implications for the region.

Renewed efforts to recover additional water to achieve an additional 450 GL from the Murray Darling Basin by the Murray-Darling Basin Authority (MDBA) has increased pressure on the water users to continue with the adaptation to a future with less water. The Australian government’s, “Restoring our Rivers” Legislation of 2023 and the agreement between the Australian, New South Wales, South Australia, Queensland and Australian Capital Territory governments to “deliver the basin plan in full”, will continue to have social and economic impacts on the catchments across our region.

The impacts of reduced water available for productive agriculture have been well documented.



CLIMATE CHANGE AND SEVERE WEATHER EVENTS

Victoria’s climate is changing. Our region is predicted to be hotter and drier in the future. Extreme weather events are becoming more frequent and more severe, and successive events like hail damage and flooding at critical times are limiting the ability of businesses to recover losses.

Temperatures will continue to increase year-round: more hot days and warm spells; fewer frosts, less rainfall in autumn, winter and spring; and more frequent and more intense downpours in summer resulting in flooding. By the 2050s, Shepparton’s climate could be more like Griffith, NSW while Swan Hill will be more like Balranald, NSW.



COMPETITIVE ADVANTAGE

Our region’s foundations are strong. Located centrally in Victoria between the two major domestic markets of Melbourne and Sydney, the Goulburn Murray region has strong road and rail transport networks and is strategically positioned to access both domestic and international markets. There is plentiful land with high-quality soils and significant water assets to support a variety of agricultural commodities.

Lower-intensity irrigation across the Goulburn Murray Irrigation District has resulted in a trend towards a hydrological balance in the soil profile. This has resulted in lower water tables and reduced adverse impacts from salinity. The region experiences higher rainfall relative to other parts of the southern Murray-Darling Basin.

River systems, sun hours, wind and biowaste resources all support opportunities in the renewable energy sector. A diverse services sector also exists, combined with ample processing and value-add capacity along with access to labour and facilities. The modernised, low-energy water supply system can provide high levels of service. Government, industry and community leaders are also committed to working collaboratively to address change and opportunity. Indeed, the Future Fuels Cooperative Research Centre highlighted the Shepparton and Echuca as two of the most viable areas to produce biomethane in 2022



PRIMARY PRODUCTION

Land use in the region continues to change due to factors like varying water availability, social, environmental and economic conditions. There are fewer but larger farms with increasing production efficiency, which is in line with national trends. This increased scale combined with mechanisation and automation has resulted in reduced demand for labour and shrinking rural populations. Cropping and dairy farming remain the most extensive land uses in the region, and the largest users of water. The dairy industry plays an important role in the regional economy, despite regional milk production declining by one-third since 2000. There is continued consolidation in the industry – both on-farm and in processing – and a change in how dairy farmers are configuring their businesses. In recent years the GMID has experienced an increase in land used for the production of perennial tree crops such as fruit, nuts and viticulture. At the same time as there has been a decrease in planting of annual crops like vegetables and tomatoes. The horticulture industry is now more focused on fresh fruit market than processing – a departure from previous decades. The trend for fresh fruit will continue due to higher values and a renewed interest in fresh fruit export. There are also opportunities in high-value niche markets.

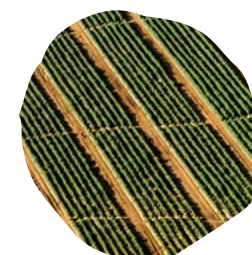


ECONOMIC DIVERSIFICATION

Cropping, dairy and grazing continue to dominate land use in the Goulburn Murray. However there is opportunity for further diversification in land use and production across the region. Emerging industries have been identified including energy (e.g. solar farms) and glasshouse plant/vegetable production. The region is expected to see growth in intensive shedded agriculture including glasshouses, piggeries and poultry. There is also potential to reintroduce indigenous food and fibre production and cultural tourism.

Additionally, opportunities exist for increased on-farm value adding such as agri-tourism and agrivoltaics which allow for the production of energy at the same time as farm production. Growth in demand for alternative renewable energy production could also stimulate new industry, including new energy storage and waste -to-energy technologies.

There are opportunities to further develop industries outside of agriculture and emerging sectors that leverage the competitive advantage and existing assets in the region.



MEGATRENDS

In July 2022 the CSIRO released its “Our Future World” report which outlined seven global megatrends impacting Australia’s future. These trends include:

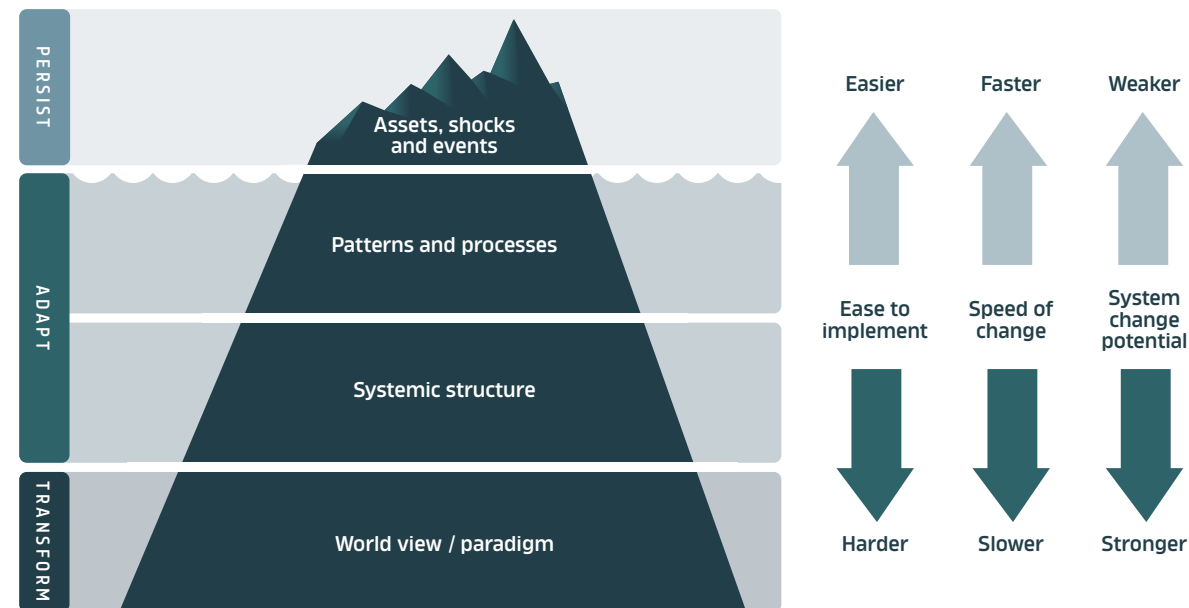
- Safeguarding livelihoods, infrastructure, and people’s quality of life amidst climate change;
- Promoting diversity, equity, and transparency in business, policy, and community decision making;
- The rise of artificial intelligence and advanced autonomous systems for increased productivity and outputs;
- Rapid growth of the digital and data economy;
- Efforts to ensure global stability, trade and economic growth;
- The escalating health imperative against a backdrop of unhealthy lifestyles, emerging diseases and an ageing population; and
- The global push towards protecting biodiversity, using resources efficiently and reaching net zero and beyond.

Types of Resilience

Resilience is not a synonym for dogged maintenance of the current situation, or a return to the past. Resilience is a spirit of courage and enterprise and encompasses a system or the components within a system's capacity to persist, adapt and fundamentally transform.

In the face of major drivers of change, some parts of industries within our region will be focused on persisting. However, it is more likely that we will need to continually adapt, and sometimes we will need to transform.

The iceberg model demonstrates that it is most effective to intervene more deeply within our system. Working above the water line will not address the underlying patterns, processes and systemic structures that enable us to adapt and transform. It may take time and be harder to implement, but deep adaptation and transformation provides stronger potential to respond positively in the face of change.



RESILIENCE PRINCIPLES

The following principles describe the characteristics of systems that demonstrate resilience. They must underpin any interventions taken to increase resilience within a system.

- Develop a complexity perspective
- Manage networks and connectivity
- Develop governance that embraces change
- Value, retain and build response and recovery capacity
- Foster cohesion, self-organisation and local responsibility
- Focus on slow variables, leverage & tipping points
- Design for flexibility
- Learn for change

Resilience in Action



PRINCIPLE 1 Develop a 'complexity' view of the world

The tendency to focus on enterprises or industries in isolation from the whole system has reduced resilience by missing critical linkages, feedbacks and unintended consequences. While agricultural production and food processing are critical to economic and employment growth, the long-term resilience and wellbeing of the region is dependent on other factors such as ageing and declining populations, lifestyle land ownership, biodiversity, and ecosystem health. Developing an understanding and capacity to plan and work with this complexity is one of the most powerful steps we can take towards building a resilient region.



PRINCIPLE 2 Develop governance that embraces change

Governance approaches that embrace change help a region to prepare for, respond to and learn from change. The Goulburn Broken Irrigation Futures project in the early 2000s clearly identified a suite of issues that were the precursors to most of the serious challenges the region now faces. A recent review of that work showed that despite its high quality, extensive process, the governance system was unable to move away from business as usual. We want to learn from that failure by developing an approach that can embrace change.



PRINCIPLE 3 Foster cohesion, self-organisation and local responsibility

Because no one group has control of a complex system, no one can build resilience on their own. Resilience building must be a system wide, collective process. Self-organisation, local decision making, and cohesion are important for addressing local scale problems. There is very clear evidence that communities with strong social capital and capacity to self-organise suffer less during shocks and disasters and recover faster.



PRINCIPLE 4 Design for flexibility

Flexibility offers long term regional resilience in the face of uncertainty by allowing for future adaptation at lower cost.

It is crucial to avoid "lock-in traps", which occur when system feedbacks become self-reinforcing, preventing change. For example, it is possible that the relatively 'fixed' footprint of current infrastructure (roads, channels) may reduce land use and production system diversity. A key lesson from the Connections project is that while there may be a higher up-front cost for investing in flexibility, in the longer term it is likely to be worth it.



PRINCIPLE 5

Manage networks and connectivity

Shifting demographics and land uses create new system dynamics for the region. For example:

- The shift from largely rural communities to increasingly urban or lifestyle communities may have implications for how agriculture is practiced.
- Management of wastes and emissions from intensive animal systems requires system wide focus.
- Habitat connectivity is crucial for biodiversity, allowing species to move.



PRINCIPLE 6

Value, retain and build response and recovery capacity

Buffers, reserves, diversity and redundancy provide long term shock absorption and rapid recovery capacity to systems. A number of recent studies suggest the economic benefits of building response and recovery capacity are significant, but that those benefits are realised over longer time frames. The prevailing paradigm is focused on shorter term efficiency and economic return at the expense of these capacities.

A Goulburn Murray example is maintenance of surface and subsurface drainage capacity, which will support future response and recovery capacity to wetter periods if and when required. Another example is Victoria’s water allocation policy. By using a rolling 2-year process it creates reserves and buffers against dry conditions.



PRINCIPLE 7

Focus on slow variables, leverage and tipping points

There are a number of slow variables that continue to play a critical role in shaping the Goulburn Murray Region, including terms of trade on traditional commodities, labour costs and regulations, and climate change. Slow changes make the system more vulnerable to short term shocks by eroding capacity to prepare, respond and recover.

For example, lower commodities prices over time reduce buffers and reserves of capital. As a result, short term spikes in input costs or interest rates, limit the capacity to pay debt. These immediate challenges can become acute when the system has ground slowly towards a major tipping point. Teasing out the short and long-term dynamics and the presence of tipping points can generate important insights for dealing with the underlying cause of change.



PRINCIPLE 8

Learn for change

Learning is critical in complex systems. Learning needs to be fostered and structured to allow local scale innovations to develop, be tested and then scaled up.

The decline in government funded Research, Development and Extension (RD&E) means a new approach to learning and innovation needs to evolve that best suits the complexity of the Goulburn Murray region. This model requires novel partnerships across private and public institutional boundaries. It requires mechanisms to collect, synthesise and share learning and a governance system that can support and enable innovations to scale up and out.

Five Areas for Intervention

People from this region have come together to identify “resilience interventions”, which are ways we will try to influence the resilience of our region. These interventions fall into five streams that embody the principles of resilience in real and practical ways.

The interventions are community-supported and based on resilience principles. They will support social, economic and environmental resilience within the agricultural landscapes of the Goulburn Murray region.

In keeping with the resilience principles, no one person or organisation will implement this strategy. Many people have come together to set this vision and many different organisations, businesses, communities and individuals will lead the interventions with many partners.

This is a living strategy, so the interventions will and must evolve over time as we learn and the region changes. We will focus on these five areas together to build the resilience of our region to cope with change and create opportunities to thrive.

RESILIENCE IMPLEMENTATION PLAN FIVE STREAMS



Futures of Agriculture



Learning for Change



Circular Economy



Natural and Built Assets



Leadership and Coordination


Futures of Agriculture




GOAL

The goal of this intervention stream is to build the ability of the agriculture sector to address change and challenges and thereby increase resilience. The interventions focus on attracting investment, embracing technology, diversifying crop types and improving supporting infrastructure.

OUTCOMES

 Diverse range of enterprise size, type and ownership

 Increased profitability of farming systems

 Regional economic growth

HOW DOES THIS INTERVENTION STREAM CONTRIBUTE TO RESILIENCE?

The Goulburn Murray regional economy is expected to remain dominated by agriculture and food. The physical assets of the region (e.g. its good soils), existing supply chains and existing services, combined with a global increase in demand for high quality food, provides the opportunity to attract new high value irrigation development. Robotics, big data, artificial intelligence and the internet of things have potential to reduce the cost of production and make the region more competitive.

The proposed interventions in this stream focus on building the ability of the region to be resilient in the face of change – supporting long term prosperity. By enabling diversification, improving productivity efficiencies, increasing connectivity, and embracing complexity, these interventions allow the region to absorb and respond to future challenges and shocks.

This region already has extensive experience in developing unique responses to challenges. For example, the development of Salinity Management Plans in the early 1980s created capacity and practical action to manage the emerging threat of salinity. These Salinity Management Plans later transformed into Land and Water Management Plans which also focused on addressing water quality, biodiversity loss and water use efficiency. Our locally developed interventions draw on this legacy and acknowledge a range of other work underway including Irrigation Futures, Connections and Local Area Planning.

WHAT IS THE ALTERNATIVE, IF WE DO NOTHING?

Irrigated agriculture dominates the Goulburn Murray region, and in recent years, economic growth has not matched the regions potential. If we don't proactively respond to the challenges of climate change, decline in water resources and farm structural adjustment, the region will continue to stagnate and then decline.

FOUNDATION INTERVENTIONS 2020-24 ACHIEVEMENTS

A1 Agricultural Redevelopment Coordination

The Agricultural Redevelopment Coordination (ARC) Project provides a one-stop shop for agricultural investment. Provision of data, guidance on approval processes, case management of development proposals, and inter agency liaison, are key services provided.

Investment is often hampered by lack of information, unfamiliarity with planning systems, difficulty in navigating red tape and regulatory requirements. This intervention enhances support to investors who wish to redevelop agricultural properties in the Goulburn Murray region. Investors include current landholders or outside investors. Information on land, water and infrastructure assets can be made available to potential investors.

The ARC Project is currently being implemented by Goulburn Broken CMA.

TIMESCALE
Short to medium term

RESILIENCE VALUE



Farm redevelopment can increase diversity and flexibility of businesses and improve ability to respond to the changing agricultural environment. This will assist developers to engage with and work through complexity. It also fosters development of networks and cohesion.

2020-24 ACHIEVEMENTS

The program is being delivered by Goulburn Broken CMA and North Central CMA in partnership with Agriculture Victoria, connecting developers with relevant agencies and facilitating investment in the region. 60 landowners were involved in the ARC across 2021-22.

A2 Indigenous Crop Production

The Dja Dja Wurrung and Taungurung corporations are investigating projects to trial and develop the case for agricultural development of native crops. This intervention proposes support to these trials.

An example is the Djandak Dja Kuntitja (Country Healing its Home) project which aims to trial and demonstrate Kangaroo Grass as a native perennial cereal grain for use in broad acre dryland cropping.

The revival of traditional food crops has multiple objectives including sustainable land management, utilisation of natural resources and return of economic advantage to Traditional Owners.

Rumbalara Aboriginal Co-operative and Njernda Aboriginal Corporation are developing Agricultural Business Plans as they investigate expanding into honey and cut flower production.

TIMESCALE
Short term

RESILIENCE VALUE




Provides opportunities for self-organisation and local responsibility for solutions. Can increase diversity and flexibility in agriculture.


2020-24 ACHIEVEMENTS

Dja Dja Wurrung is trialling Kangaroo Grass as a commercially viable feed crop, and has attracted \$1.8m investment from the Commonwealth. A research paper highlights strengths and opportunities for further research. The Murray Darling Basin Development Program invested \$1.1m in the Follow the Flowers project which supports Indigenous landowners to develop opportunities in honey production and native cut flower production. Producers have progressed to commercial stage.


A3 Smart Farming

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| <p>In a changing and complex environment, embracing change and complexity is vital. This includes embracing technology change. It increases the resilience of farming enterprises and food manufacturing by enabling them to move up the value chain to higher profitability production.</p> <p>In this intervention, we propose building local capability through connection with leading research and innovation partners. This will include:</p> <ul style="list-style-type: none"> • Building on findings from the current AgVic On-Farm Internet of Things Trial. • Increasing digital literacy through courses, digital festivals and other initiatives • Trialling low-power wide area networks • Investigation of opportunities to capitalise on existing digital infrastructure in the region. • Investigation of opportunities to utilise robotics and artificial intelligence to enhance agricultural production. | <p>TIMESCALE Short to medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Provides data for learning that improves better decision making and adaptation.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Evaluation and reporting is underway following Internet of Things trials. Agriculture Victoria provided a \$10m investment into the Digital Agriculture Investment Scheme. Further work is required to explore opportunities.</p> |

A4 AgriTourism Network

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| <p>The intent of this intervention is to diversify agricultural income streams through development of agri-tourism opportunities. This would link farms directly to consumers.</p> <p>Farm trails would be developed to promote the opportunities and guide tourists through the region. Repurposing of existing infrastructure (e.g. unused houses or farm sheds) would be encouraged.</p> <p>This intervention could incorporate a learning for change component. Increasing knowledge of the food supply system and connecting people to their food. It would also incorporate a focus on indigenous foods and multicultural foods. The phrase “many great flavours to taste” is an example from the Greater Shepparton Visitor Guide.</p> <p>Links with environmental tourism intervention (D2) as related infrastructure can support both.</p> | <p>TIMESCALE Medium to long term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Will promote diversification of farm business income and build connection to and knowledge of consumers.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>There has been no action to date. The taskforce will engage with Tourism boards to determine interest and opportunities.</p> |

A5 Regional Resilience Fund

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| <p>The purpose of this intervention is to incentivise investment that increases the resilience of farm enterprises.</p> <p>This will include adaptive or transformative change to practices, systems and risk mitigation strategies. It could include diversification to less water reliant farming. This initiative will explore the feasibility of the fund and a range of other financial incentives to support innovative projects.</p> <p>The program could also extend to facilitating connections with potential investors, an innovation network connecting businesses with innovation services and capabilities, funding for business decision making activities and provision of a skills and training package tailored to opportunities in the Goulburn Murray region.</p> <p>This intervention has parallels with existing programs such as the Future Industries Fund and the Regional Jobs Fund.</p> <p>This intervention could include establishment of a not-for-profit Regional Resilience Foundation, which would enable the private sector and philanthropic groups to contribute to resilience building initiatives.</p> | <p>TIMESCALE Medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Will promote change and diversification of farm businesses and build skills to continually adapt to future shocks.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>There is an opportunity to align priority projects to existing funding sources within DEECA and Regional Development Victoria. The taskforce is exploring opportunities to leverage Latrobe Valley Authority resources and Victorian government approaches to managing transition.</p> |

A6 Regional Investment Prospectus

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| <p>The purpose of this intervention is to better promote the positive strengths and competitive advantages within the region and engage with the private sector to attract continued investment.</p> <p>This project will connect prospective developers or investors with information on land and water availability, soil quality and provide a gateway into local government for investment enquiries.</p> <p>The project will further develop and promote the Goulburn Murray’s brand and recognition as the nation’s Food-bowl and an attractive destination for employment, investment and lifestyle.</p> | <p>TIMESCALE Medium to long term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Will promote region’s competitive advantage to investors with a view to economic prosperity and diversification.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>An investment prospectus website has been developed: Goulburn Murray – Invest, Grow, Prosper. The website highlights the diverse agricultural investment opportunities available in the Goulburn Murray Irrigation District (GMID) and emphasizes the strengths of the District’s production environment, industry services, planning support and community lifestyle.</p> |


Learning for Change



GOAL

The goal of this intervention stream is to support our region to learn so we can develop innovative ways to address change and challenges. The interventions selected focus on increasing skills, knowledge and information flows.

OUTCOMES

 Research undertaken specific to local problems

 Increased water and financial literacy within agricultural industries

 Evidence of innovative practices applied in agriculture and land management

HOW DOES THIS INTERVENTION STREAM CONTRIBUTE TO RESILIENCE?

The interventions proposed in this stream will support learning and knowledge flows across our region. This will help people increase the skills and knowledge needed to achieve resilience.

WHAT IS THE ALTERNATIVE, IF WE DO NOTHING?

Throughout the engagement undertaken in development of the Goulburn Murray Resilience Strategy, we heard that many farmers, industries and communities struggle with change because they don't have the knowledge or skills needed to adapt or transform.

Without learning, people, businesses and organisations across this region will persist with approaches that don't work in a changed environment.

FOUNDATION INTERVENTIONS 2020-24 ACHIEVEMENTS

B1 Goulburn Murray Learning Centre

A regionally based centre for learning, in relation to agriculture and land management. This centre would provide a local resource to coordinate local research, data, extension, knowledge sharing and adoption. The intent is to work with leading partners to align with existing RD&E and create a culture of learning and success. Activities could include:

- Communicating research and knowledge from other parts of region and outside the region. Need broad perspective to drive learning.
- On ground experimentation pilots - farm trials. Supports farmer preference for practical demonstrations.
- Coordination of regional agriculture and land data in a central place.
- Developing water and financial literacy.
- RD&E in relation to technology; soil health; crop varieties; regenerative agriculture; water use efficiency; indigenous crops.

TIMESCALE

Medium term

RESILIENCE VALUE




Increasing local skills will assist with coping with change and diversification of the regional economy. This intervention could network with a wide range of existing R&D initiatives and organisations in the region.

2020-24 ACHIEVEMENTS


A Drought Resilience Hub has been established at University of Melbourne's Dookie campus supported by an \$8m investment through the Commonwealth Future Drought Fund. The Dookie campus has also received \$11m from the Victorian government for accommodation and conference facilities. SPC and La Trobe University are undertaking a feasibility study for a Regional Agrifood Innovation and Learning Hub, and TAFE is now offering courses in Agriculture.

The NorVicFoods project has been established within the region as a partnership between University of Melbourne and the Victorian Government. The project connects businesses and industry in the region with researchers and students to drive innovation and efficiencies at a local level.


B2 A Goulburn Murray Regional Hub in the One Basin CRC

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| <p>The ONE Basin CRC is a University of Melbourne and University Southern Queensland proposal. The purpose of this new CRC is to deliver valued and trusted advice for the agri-sector, leaders, communities and environmental managers in the Murray Darling Basin.</p> <p>The CRC proposes to develop policy, technical and financial solutions that support Basin communities, businesses and governments to understand and reduce their exposure to climate, water and environmental threats.</p> <p>A Goulburn Murray regional hub would support two-way learning between researchers and our region about water challenges and opportunities of relevance to us and the wider basin.</p> | <p>TIMESCALE Medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>New sources of innovation are critical for adaptive and transformative management. This intervention could network with a wide range of existing R&D initiatives and organisations in the region.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>The One Basin CRC was funded in 2022 but, despite expectations, no regional hub is located within the Goulburn Murray Irrigation District. The Our Water Futures project, a joint venture between the North East and Goulburn Broken CMAs, was one of the successful Quick Start projects with the One Basin CRC.</p> |

B3 Coordinated Regional Research

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| <p>Coordinated research into key areas of change in the Goulburn Murray region can support local adoption of innovations that strengthen resilience.</p> <p>This intervention could be realised through a formal body, such as the One Basin CRC (B2), or the Goulburn Murray learning hub (B1), or individuals or organisations could band together to do research and share results.</p> <p>Research topics could include:</p> <ul style="list-style-type: none"> • Circular economy opportunities and barriers in the region. • Climate risk analysis of major food value chains and identification of business opportunities • The practical applicability of climate smart agriculture technologies in the Goulburn Murray region • Social research into regional and local barriers to adoption of innovation. • The effects of various technologies on water use efficiency. | <p>TIMESCALE Ongoing</p> |
| | <p>RESILIENCE VALUE</p>  <p>Research and development needs to be coordinated to achieve the best outcomes. This intervention would enable and encourage creative thinking, and allow redundancies in science.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>The taskforce will continue to engage with the CRC to leverage opportunities or contribute to research work.</p> <p>The CSIRO and Monash Sustainable Development Institute have reached out to the Greater Shepparton City Council with the intent of working with the region on transition to a circular economy.</p> <p>The undertaking of the Gogreen research project by the Australian National University which highlighted the Resilience Taskforce as a Case Study.</p> |

B4 Renewed Rural Skills Connect

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| <p>Creation of a buddy system pairing resilient or transformative farmers with more traditional farmers or young farmers entering the region. This would increase social networks and skills sharing across practical/technical knowledge and business planning.</p> <p>Link with financial & water literacy and succession planning training, potentially included in the learning hub (B1).</p> <p>The existing Rural Skills Connect program, could be used as a platform.</p> <p>Could incorporate a digital platform to assist with matching people.</p> | <p>TIMESCALE Medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Resilience value will be high if this is designed to connect transformational farmers with those who are struggling to cope with change.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Funding has lapsed for the Goulburn Murray Irrigation District program, previously administered by Murray Dairy.</p> |

B5 Regional Drought Resilience Plan

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| <p>The Goulburn Drought Resilience Plan identifies and outlines a set of actions to build social, environmental and economic resilience to future dry seasons and drought. Given the amount of existing work related to drought in the region, one of the main objectives of the Plan is to align, strengthen and coordinate existing drought related strategies and activities to increase drought resilience in the region. An Implementation Plan Governance Group has been established to facilitate this.</p> <p>The Goulburn region is defined by the Goulburn Regional Partnership boundary established by the Victorian Government and includes the local government areas of Moira, Greater Shepparton, Strathbogie, Mitchell and Murrindindi.</p> | <p>TIMESCALE Medium to long term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Proactive response to drought resilience via coordination and improved governance in combination with strengthening of drought related activities in the region.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Goulburn Broken Regional Drought Resilience Plan is funded by the Commonwealth Future Drought Fund and developed by Agriculture Victoria in partnership with agencies, local government and non-government organisations. Goulburn Broken CMA is the coordinating agency for actions under the plan. Plans for the Ovens Murray, Loddon Campaspe, and Murray are nearing completion and will complement the Goulburn Broken plan in helping regions prepare for and manage through drought.</p> |



B6 The Regional Investment Attraction Project (RIAP)

The project is funded by the Victorian Government and led by CSIRO. It has developed a number of research projects aimed at developing agriculture value-add opportunities. This has included studies into greater utilisation of waste produce and processing byproducts within the region.

TIMESCALE
Medium term

RESILIENCE VALUE



Research and industry collaboration with potential to reduce waste and improve economic outcomes in the region.

2020-24 ACHIEVEMENTS

RDV, along with CSIRO, piloted a new innovative model with to engage with industry and universities to unlock Food and Fibre value-add opportunities. This innovative delivery model was supported by Regional Development Australia and the Regional Partnerships. The project engaged a diverse range of stakeholders from across the industry and government.

RDV identified 48 projects across the state to be considered under the RIAP model. These projects were then review by the universities using a prioritisation model that was developed by Deakin for this purpose.

These projects shortlisted to 10 and have had feasibility and business case work developed to:

- Identify state and federal government support that may be available for the projects.
- Identify domestic and international investment opportunities.
- Seek partnerships for project delivery and engage industry associations.

GOULBURN MURRAY RESILIENCE INTERVENTION STREAM:


Circular Economy





GOAL

The goal of this intervention stream is to support our region to develop a circular economy, underpinned by a transition to renewable energy sources. A circular economy is restorative and regenerative by design. It aims at eliminating waste and the continual use of resources.

OUTCOMES

 Improved circulation of regional resources

 Increased local and renewable energy production

 Reduced carbon emissions

HOW DOES THIS INTERVENTION STREAM CONTRIBUTE TO RESILIENCE?

The Goulburn Murray region currently uses enormous amounts of resources, including energy and water, and in the process, we produce large amounts of waste products. There are huge opportunities for the region to work together to transition to renewable energy sources and connect waste and inputs in ways that will positively transform our region.

A circular economy, underpinned by use of renewable energy, will transform the way goods are produced and used to increase efficiency and self-sufficiency within the region. This will require changes that intersect social, economic and environmental systems. To succeed, our region will need pay attention to networks and connectivity and learning from change.

The proposed interventions will support industry development, improve soil fertility, decarbonise industry and repurpose or reuse waste streams. Developing a circular economy in the Goulburn Murray region will make us less reliant on external resources, and build buffers and redundancy, so the region can absorb and respond to challenges and future shocks.

WHAT IS THE ALTERNATIVE, IF WE DO NOTHING?


Over the last twenty years, the region's net water resources have declined by nearly 50%. Other finite resources such as fossil fuels and phosphorus are cornerstones of agriculture and land management, but production of these resources is predicted to reach a tipping point in the next 10 years. Along with global increase in demand for high quality food, this means that for industries in the Goulburn Murray region to survive, they will have to do more with less.

FOUNDATION INTERVENTIONS 2020-24 ACHIEVEMENTS


C1 Regional Circular Economy Coordination

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| <p>This regional circular economy coordinating body will identify barriers and opportunities within the Goulburn Murray region, and areas where circularity requires support or intervention.</p> <p>This intervention could include a digital platform or marketplace as a circular economy exchange. This would identify what wastes are produced versus what inputs are needed.</p> <p>Education and advocacy would also be a key component. Many people are simply not aware of the opportunities already available, or the rationale/ motivation for engaging.</p> | <p>TIMESCALE Short to medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Provides network to support transition to circular economy, making us less reliant on external resources, and building buffers and redundancy. Increases awareness and local skills to catalyse innovation.</p> |
| | <p>2020-2024 ACHIEVEMENTS</p> <p>Regional Circular Economy Plans have been developed by DEECA. The Circular Economy Pilot project completed interviews across industries and developed a report on current activities, gaps and recommended interventions.</p> <p>The Taskforce will monitor and support emerging opportunities. In addition the Circular Central Victoria report conducted across nine Local Government Area has been finalised and outlined up to 17 new Circular economy projects, several of which are ready to invest in and others which are conceptually feasible but require further investment and building of specific business cases.</p> <p>The GB CMA led report, Driving a Circular Economy in the Goulburn Murray, completed interviews across industries and developed a report on current activities, gaps and critical next steps.</p> |


C2 Biogas Pilot

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| <p>A pilot biogas system will be constructed within the Goulburn Murray region to demonstrate their potential to local farmers.</p> <p>Methane from effluent/manure can be captured from lagoons/ponds through biological or thermochemical processes to produce energy. Other benefits include reduced odour and Greenhouse gas emissions, and improved fertiliser value of solids by-products.</p> <p>To make systems viable, farms need to be of sufficient scale or potentially work together in clusters. They also need to incorporate use of feedpads or barn style housing to ensure sufficient solids production and capture.</p> | <p>TIMESCALE Short term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Increased self-sufficiency building waste into energy source. Potential for scaled innovation. Secondary benefits in odour, GHG and nutrient management will assist farmers meet environmental obligations (a slow variable).</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>A feasibility study has been completed, which showed in-theory feasibility for two on-farm biogas designs for dairy operations. AgVic is conducting further engagement and promotion.</p> |


C3 Locally Owned Energy

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| <p>This intervention proposes a pilot of peer-to-peer energy production and trading.</p> <p>This could prioritise connection between industry and local generation – potentially also seeding biogas plants (C2).</p> <p>This would increase industry self-sufficiency and reduce exposure to market variabilities.</p> <p>This intervention builds the potential for the region to own and control a significant regional input.</p> | <p>TIMESCALE Medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Increases industry self-sufficiency and reduces exposure to market variabilities. Builds on trend in renewable installations but with a local focus on ownership and use.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Yurringa Energy secured funding for feasibility and design work for a Indigenous-led waste-to-energy development.</p> |

C4 Indigenous Renewables Startup




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| <p>Support to a new joint venture development of renewable energy assets that will be Indigenous owned.</p> <p>The proposal is to investigate the development of two flagship renewable energy assets: a grid connected utility scale solar photovoltaic; and a bioenergy waste to energy plant.</p> <p>This will support Traditional Owners' efforts to improve their prosperity and ability to shape the local economy so they can direct their own futures.</p> | <p>TIMESCALE Short to medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Supporting Indigenous led business development. Projects could become demonstrations to support learning and encourage others to implement across region.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>With funding secured for feasibility and design work for Yurringa Energy's waste-to-energy development, the taskforce will monitor and support the project.</p> |

C5 By-products as Fertiliser

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| <p>While by-products are an acknowledged fertiliser resource, there are barriers to their use on agricultural land including consistency of supply, contamination concerns and knowledge about resources.</p> <p>This intervention would support a regional network to divert by-products from landfill and coordinate their use on farms across the region.</p> <p>Improved soil organic matter supports eco-system regeneration. This intervention will provide a valuable source of nutrients, cultivate microbes, improve water retention and increase yield.</p> | <p>TIMESCALE Short to medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>This will demonstrate leadership in farm use of by-products and in doing so reduce the reliance on chemical fertilisers.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Businesses within the region are exploring opportunities to develop and expand fertiliser production. Water authorities are exploring opportunities for utilising waste by-products like biochar. The taskforce will continue to advocate for development of work in this area.</p> |



C6 Circular Economy Seed Fund

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| <p>This intervention will provide local producers with grants to investigate and trial innovative processes that reduce or re-use waste and regenerate natural systems.</p> <p>This could include research and development in robotic effluent and solid waste separation, subsoil manuring, biosolid opportunities, or recycled water for cooling.</p> <p>Projects could become demonstrations to support learning and encourage others to implement across the region.</p> | <p>TIMESCALE Short to medium term</p> |
| | <p>RESILIENCE VALUE</p> <p>  </p> <p>Investing in local innovation means solutions are tailored to the needs of industries in the region to foster local responsibility and collective action.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>While there is limited seed funding or startup capital available, strategic work continues in the circular economy space.</p> |

C7 Circular Economy Prospectus

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| <p>The purpose of this intervention is to encourage further investment in circular economy opportunities that realise the region's competitive advantages. The Goulburn Murray has been identified as a region of high potential for circular economy and clean energy investment due to its industry concentration and infrastructure profile.</p> <p>This intervention will synthesise existing strategic work and build on the promotional work done through the Regional Investment Prospectus and promote the attributes of the region that make it attractive for circular economy investment by new and existing businesses as a way of reducing waste and finding new energy or product opportunities in place.</p> | <p>TIMESCALE Short</p> |
| | <p>RESILIENCE VALUE</p> <p>   </p> <p>Will promote region's competitive advantage to Circular Economy investors with a view to diversification.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>High level strategic work has been undertaken to highlight circular economy opportunities and barriers in the region. The Driving a Circular Economy in the Goulburn Murray report identified opportunities to invest in the circular economy and highlighted several existing case studies.</p> |

GOULBURN MURRAY RESILIENCE INTERVENTION STREAM:

Natural and Built Assets




GOAL

The interventions prioritised in this stream will lead to natural and built assets that support social, economic and environmental resilience within our agricultural landscapes. Natural assets include waterways, forests, soils and their related ecosystems. Built assets include transport, water and power networks plus public and private infrastructure and facilities. Both provide important economic, recreational and environmental services and functions.

OUTCOMES

 Reliable communication and transport across the region

 Increased extent and health of terrestrial ecosystems

 Increased waterway health

HOW DOES THIS INTERVENTION STREAM CONTRIBUTE TO RESILIENCE?

The physical assets of a region – its geography, forests, waterways, facilities and infrastructure – have a profound impact on a region's ability to respond to change. A region with flexible, well connected assets with inbuilt redundancy, is more resilient to change.

Interventions in this stream focus on building resilience by enabling diversification, increasing connectivity and improving liveability. Natural and built assets are a crucial factor for the attractiveness of a region. Attractive, well serviced areas encourage people and business to relocate. This can assist the region to combat the global trend towards urbanisation.

Built infrastructure can facilitate economic diversification. In particular, transport and communication are powerful tools for connectivity. Currently, there is a digital gap between cities and rural areas. The needs of rural and remote users are often overlooked in upgrades to telecommunications and transport infrastructure.


Natural assets such as rivers, lakes, green spaces and vegetation not only improve the liveability of rural areas, but also underpin agricultural industry, contribute to carbon sequestration, stimulate the restoration economy and increase tourism opportunities.

WHAT IS THE ALTERNATIVE, IF WE DO NOTHING?


Our current built and natural assets face serious challenges associated with demographic and climate change. Challenges such as reduced water inflows, increased heat, and agricultural impacts, threaten the health of waterways, forests and grasslands and their associated flora and fauna. Meanwhile, demographic change threatens both small towns and growth areas, potentially resulting in underserved populations and economies.

FOUNDATION INTERVENTIONS 2020-24 ACHIEVEMENTS


D1 Alternative Transport Technologies

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| <p>Electric, hydrogen fuelled, and autonomous trucks and cars are fast-approaching. They offer huge potential for reduced costs and emissions and improved reliability, efficiency and safety.</p> <p>However rural and regional areas are at risk of being overlooked regarding infrastructure upgrades such as charging stations.</p> <p>This intervention involves exploring the prospect of developing renewable energy charging stations within the Goulburn Murray region to support passenger and freight transportation. It is recommended that facilities provided ensure support to multiple brands and fuel types to increase flexibility.</p> | <p>TIMESCALE Short to medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Proactive localised response to anticipated shock in personal vehicle market. Builds on existing efforts by local government.</p> |
| | <p>2020-2024 ACHIEVEMENTS</p> <p>Seymour is the first regional town in Victoria to operate an all-electric local route bus network as part of the state government's Zero Emissions Bus Trial.</p> <p>Foott Waste in Shepparton has trialled an electric waste truck on regional routes and it is the first for the Australian market.</p> <p>There has been limited activity within freight and logistics with further work required to understand opportunities.</p> |


D2 Collaborative and Alternative Digital Solutions

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| <p>As advocated in the Goulburn Digital Plan, this intervention involves exploration of feasible alternative digital connectivity solutions for the Goulburn Murray region.</p> <p>For example, the region could advocate for improvements to Sky Muster to enable innovative business models, use of ag tech and improved connection. The intervention could also support industry collaboration to attract shared services or infrastructure to reduce cost burdens.</p> <p>This would benefit emergency management, mental and physical health, education, business productivity, tourism and the regional economy.</p> | <p>TIMESCALE Medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Improving communication and digital networks and connectivity has a range of resilience building benefits.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Connecting Victoria is funding mobile towers and NBN upgrades across the state. Further advocacy is needed to attract infrastructure investment.</p> |

D3 Foster Environmental Tourism

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| <p>The purpose of this intervention is to encourage greater appreciation and use of our environment and thereby improve environmental stewardship.</p> <p>Potential inclusions are:</p> <ul style="list-style-type: none"> development of nature-based tracks and trails support for indigenous enterprises that leverage our natural and cultural landscape increasing services and infrastructure to environmental tourism assets with locally based operators/owners to increase local economic benefit. use of technology to enrich physical experience (e.g. guide via apps) market/promote opportunities available in region <p>This intervention could link to farm and food related trails and tourism (A4).</p> | <p>TIMESCALE Medium to long term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Diversified income streams build economic resilience. Also increases awareness of environmental values in local and wider population.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>There have been exciting developments in this space. The Barmah Forest Masterplan is complete and a Joint Management Plan is in place with Yorta Yorta Nation and Parks Victoria.</p> <p>The Murray River Adventure Trail is in development and will encompass a series of connecting walking, cycling and paddling trails, passing through the Barmah and Gunbower National Parks.</p> <p>The Goulburn River Trail Exploratory Study is underway with consultants engaged through Greater Shepparton City Council.</p> |

D4 Regional Resilience Fund – Natural Assets

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| <p>The purpose of this intervention is to incentivise investment that increases the resilience of the natural assets within our region. This will result in environmental, social and economic benefits, including improved liveability and wellbeing, carbon sequestration, and increased recreation and tourism opportunities.</p> <p>Eligible projects are those that can create adaptive or transformative change to practices, systems and risk mitigation strategies. It could include the Resilient Rivers program, revegetation, floodplain restoration, and other projects to improve natural assets.</p> <p>Incentives could be in the form of tax incentives, low interest loans or grants to support innovative projects. They could be sourced from public or private investment.</p> <p>This intervention is closely related to the Regional Resilience Fund – Agriculture (A5).</p> | <p>TIMESCALE Medium term</p> |
| | <p>RESILIENCE VALUE</p>  <p>Waterways, forests, soils and their related ecosystems are critical system components. Their health and function underpins a range of social, cultural, economic and environmental outcomes.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Several programs are occurring including the Federal Government's Agriculture Stewardship Carbon + Biodiversity and Enhancing Remnant Vegetation pilot program.</p> <p>Work is also being done to quantify native vegetation carbon opportunities by both Goulburn Broken CMA and the North Central CMA. The Goulburn Broken CMA is working with VicWater and DEECA to lead state initiatives. The Goulburn Broken Regional Catchment Strategy includes a process for identifying emerging catchment risks, and is working with our partners to ensure these risks are discussed, actions prioritised and roles allocated.</p> <p>There has been significant investment in infrastructure rebuild and repair following the floods in Northern Victoria in 2022.</p> |


Leadership and Coordination



GOAL

The goal of this intervention stream is to support our region to lead and coordinate actions that will foster a culture of resilience in the Goulburn Murray region. The interventions selected focus on increasing resilience capacity, increasing information flows and improving community connectivity.

OUTCOMES

 Action driven by the community

 Increased leadership diversity

 Public and private coordination of interventions

HOW DOES THIS INTERVENTION STREAM CONTRIBUTE TO RESILIENCE?


The interventions proposed in this stream will encourage self-organisation, coordinate activity, provide accountability and increase resilience capacity. This will help our region drive adaptation and transformation from within.

WHAT IS THE ALTERNATIVE, IF WE DO NOTHING?

Throughout the engagement undertaken during development of the Goulburn Murray Resilience Strategy, community and industry told us that local leadership and coordination will be crucial to build resilience. Without it, the region will be subject to policy and projects that aren't suited to its complex and unique dynamics.

FOUNDATION INTERVENTIONS 2020-24 ACHIEVEMENTS

E1 Resilience capacity building


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| <p>This intervention involves building the capacity of farmers, other land managers and agency staff to embrace change and build resilience. It will require a range of activities, practiced over time as capacity building is slow but ultimately incredibly effective and long lasting. It could be incorporated into a range of existing regional activities including leadership training and Board inductions.</p> <p>Locally tailored programs could be focussed on:</p> <ul style="list-style-type: none"> • Understanding and accepting change as normal • Understanding resilience concepts and the potential presented by adaptation and transformation • Developing understanding of the importance of buffers to withstand crisis times • Supporting learning and collaboration with each other and outside the region • Empowering community led decision making <p>The approach will involve development of resilience champions (respected locals) to support the capacity building.</p> | <p>TIMESCALE Short term</p> <p>RESILIENCE VALUE  Building capacity to engage with and use the resilience principles is a high value, foundation action.</p> <p>2020-24 ACHIEVEMENTS The Goulburn Broken CMA continues to provide national leadership in resilience approaches, including presenting to the National NRM Knowledge Conference. The Taskforce has also presented to the Secretary and senior staff in the Department of Agriculture Food and Fisheries on the Resilience Strategy and our approach to empowering community-led decision making and action. The Goulburn Murray Irrigation District was also chosen as a pilot site for the Future Drought Fund's Rural Leadership Foundation Training. The Goulburn and Loddon Campaspe catchments are also part of a federally funded Drought Resilience Plan pilot.</p> |
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E2 Resilience seed bank

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| <p>A resilience seed bank is a virtual storehouse that collects and catalogues ideas or projects that support transformation and resilience.</p> <p>This intervention is modelled on the Seeds of the Good Anthropocene, which includes a map of ideas/projects (seeds), an overview of each seed and a platform to submit new seeds.</p> <p>In the Goulburn Murray region, our seed bank could capture the innovations that are growing the future we want.</p> <p>Social networks can self-organise around the seedbank, supporting a spirit of resilience in the region.</p> | <p>TIMESCALE Ongoing</p> <p>RESILIENCE VALUE  Maintaining a bank of ideas is an important aspect of systemically catalysing and organising innovation.</p> <p>2020-24 ACHIEVEMENTS A repository of ideas. Our Taskforce Secretariat is maintaining a database of Resilience Strategy Interventions.</p> |
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E3 Community leadership forums

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| <p>This intervention will involve a range of activities to connect resilience leadership with the community, including:</p> <ul style="list-style-type: none"> An annual public forum would provide a means to help demonstrate accountability, by enabling a wide cross section of the community to understand what has been achieved, as well as how they can get involved. This builds on the regional forum approach that was instrumental in initiating this strategy. Participants would be supported to think at a systems level, about new interventions, interaction with existing interventions, unintended consequences and the sparks of disruptive or transformational opportunities. Innovation workshops could be held across the region to provide opportunities for local communities to identify issues that are impacting them and suggest appropriate place-based solutions. Establishing a program of Leadership Tables, to provide informal opportunities where people can come and share their ideas, their perspectives on emerging issues and can provide a sounding board to test innovative change proposals. This process may also lead to a more structured deliberative panel process, or provide an opportunity to develop succession plans for future Taskforce members. | <p>TIMESCALE Annual</p> |
| | <p>RESILIENCE VALUE</p>  <p>Strengthening regional resilience leadership and capacity is a high priority. The forums will provide important avenues for shared learning and exchange.</p> |
| | <p>2020-24 ACHIEVEMENTS</p> <p>Working with Goulburn Murray Leadership Program to integrate the Resilience Strategy into the leadership program.</p> <p>Developed and supported the emerging Water Leaders forum following interest in drought resilience and leadership by participants of the Australian Rural Leadership.</p> <p>Joint Forum held by the LEAD Loddon Murray and GM Leadership.</p> <p>Resilience principles have been embedded within the program design for the Goulburn Murray Community Leadership Program.</p> |

Implementation

There is plentiful experience that developing a good plan on its own is not sufficient to create change. Appropriate governance arrangements will lead to effective implementation, turning this Strategy into real change for the region.

A Regional Goulburn Murray Resilience Taskforce has been established to act as the custodians of this strategy, the region's shared vision and voice, and to translate that vision into resilience building action. The Taskforce has been responsible for embedding resilience principles into governance structures and processes, and for catalysing, testing and scaling innovations up and out. It monitors unintended systemic consequences and risks, and progress of the system towards a desired future.

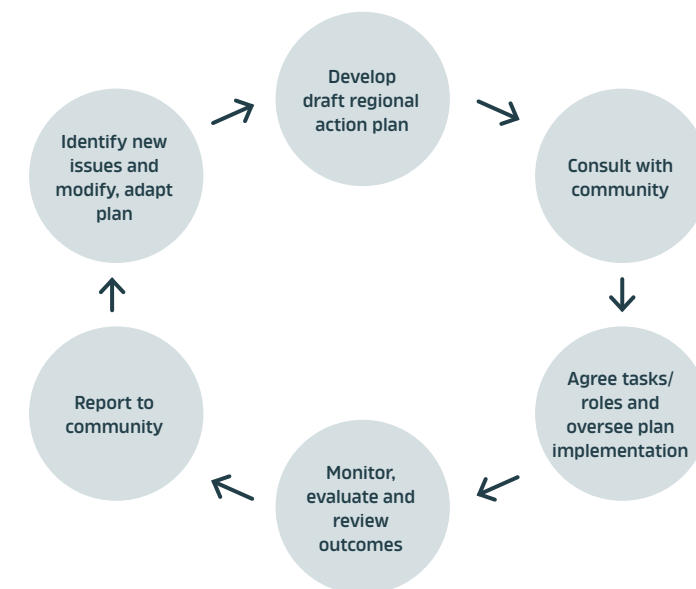
The Taskforce is skills based and diverse, with expertise and geographic representation relevant to overseeing resilience building actions across the region. It is comprised of regional leaders who have influence within the community and is supported by a small, professional secretariat within Government.

The Regional Resilience Taskforce has been established under the Regional Partnerships structure. It does not replace or duplicate the existing Regional Partnerships but provides a cross-cutting structure that complements their work and integrates and addresses the issues needed to deliver this regional resilience strategy.

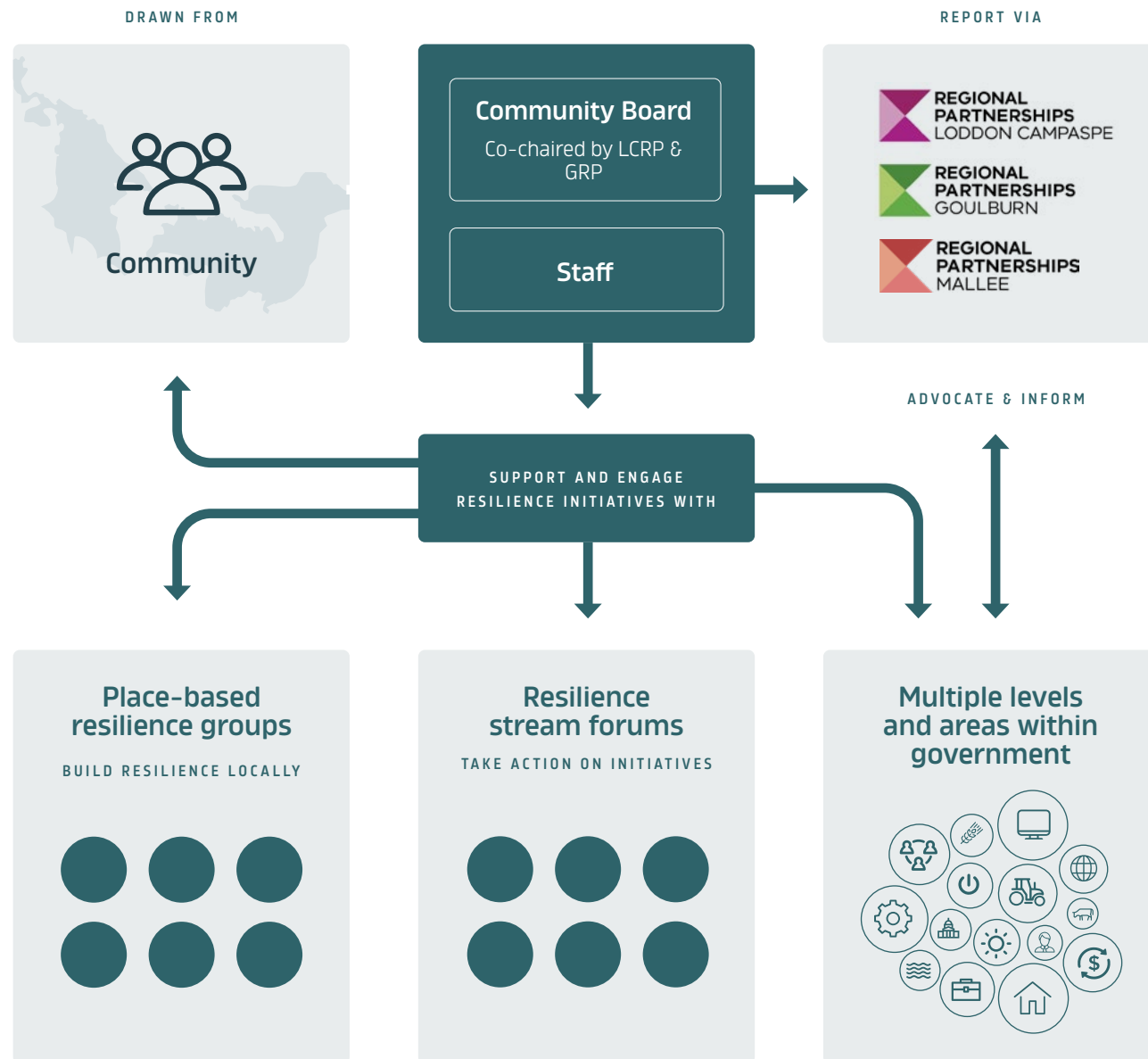
Governing a complex, dynamic region presents many challenges. We have made efforts like this in the past, learning that strategies fail without resources to coordinate implementation. Previous leadership and coordination forums tended to focus on a limited span of issues or a constrained geographic region. Outside of the Taskforce, there are no governance groups or processes that span the entire Goulburn Murray region or address all the issues that will need to be integrated to build resilience. There are no formal ongoing arrangements with a clear focus on building resilience and creating transformational change across the region.

With additional resourcing and cross-government collaboration- the Resilience Taskforce represents an opportunity to take a community-led, place-based approach to building the resilience and adaptive capacity of the Goulburn Murray Region as it experiences ongoing transition.

Figure 1: Action planning and implementation process



GOULBURN MURRAY RESILIENCE TASKFORCE*



* to be fully implemented with funding support

