Regional Drought Resilience Plan

Southern Tableland Councils bordering the ACT

Queanbeyan-Palerang Regional, Snowy Monaro Regional and Yass Valley Councils

October 2024

Australian Government
Department of Agriculture, Fisheries and Forestry

Future Drought Fund

Supported by NSW GOVERNMENT

QPRC

SNOWY MONARO REGIONAL COUNCIL

yass valley council
the country the people

Abbreviations

Term	Definition
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
Bureau	Bureau of Meteorology
CDI	Combined Drought Indicator
CoREM	Coalition of Renewable Energy Mayors
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Fisheries and Forestry
DCCEEW	Department of Climate Change, the Environment, Energy & Water New South Wales (see DPE)
DDI	Drought Direction Index
DPE	Department of Planning and Environment (former DPIE and now DCCEEW)
DRAMP	Drought Resilience, Adaptation and Management Policy
DPIRD	Department of Primary Industries and Regional Development
EDI	Economic Diversity Index
EDIS	Enhanced Drought Information System
FDF	Future Drought Fund
FRRR	Foundation for Rural and Regional Renewal
GFC	Global Financial Crisis
GRP	Gross Regional Product
GVA	Cross Value Added
IPCC	Intergovernmental Panel on Climate Change
IRSAD	Index of Socio-Economic Advantage and Disadvantage
LGA	Local Government Area
LLS	Local Land Services
MEL	Monitoring, Evaluation Learning
NDA	National Drought Agreement
NPWS	National Park and Wildlife Services

Term	Definition
NSW	New South Wales
PCG	Project Control Group
PDI	Potential drought impact
QPRC	Queanbeyan-Palerang Regional Council
RAA	Rural Assistance Authority
RCP	Representative Concentration Pathway
RDC	Rural Research and Development Corporations
RDA	Regional Development Australia
RDRP	Regional Drought Resilience Plan
REDS	Regional Economic Development Strategy
REZ	Renewable Energy Zone
RFCS	Rural Financial Counselling Service
RIC	Regional Investment Corporation
RIRDC	Rural Industries Research and Development Corporation
SEIFA	Socio-economic Indexes for Australia
SMRC	Snowy Monaro Regional Council
SPI	Standardised Precipitation Index
SRG	Stakeholder Reference Group
SSMI	Standardised Soil Moisture Index
WTP	Water Treatment Plant
WUE	Water Use Efficiency
YVC	Yass Valley Council

Key Terms

Term	Definition
Absorptive capacity	The ability of individuals and groups to continue without adapting or changing their behaviour in response to environmental and socioeconomic changes (Béné et. al., 2012).
Adaptation	Adjustment or modification in natural and/or human systems in response to actual or expected shocks and stresses to moderate harm, reduce vulnerability and/or exploit beneficial opportunities.
Adaptive capacity	The ability of individuals and groups to adjust and respond to environmental and socioeconomic changes.
Adaptive governance	Co-ordinating iterative, flexible and responsive interactions between systems when designing interventions and for their implementation and evaluation.
Co-design	The process of partnership to develop and formulate project delivery and agreed objectives and needs, using participatory methods. A process of working together utilising generative and explorative processes.
Climate Change	Global, long-term shifts in average weather conditions, such as becoming warmer, wetter, or drier over several decades or longer.
Drought	Drought in general means acute water shortage. Drought is a prolonged, abnormally dry period when the amount of available water is insufficient to meet our normal use (BoM, 2024). Drought is complex and multi-dimensional and impacts society, the environment and the economy. There are many types of drought including meteorological, agricultural, hydrological and socioeconomic. Definitions are provided within the report.
Economic resilience	The ability of the economy to absorb the economic impact of shocks and stressors without changing the economic status or outcomes.
Environmental resilience	The ability of the natural environment to cope with a diverse range of shocks and stressors while maintaining natural processes and ecosystem services.
Governance	Governance is the structures and processes by which individuals, groups and agencies in a society share power and make decisions. It can be formally institutionalised, or informal.
Intervention options	Alternative or complementary actions, projects, programs, policies, initiatives and investments that are planned to bring about change in the system (Maru et. al., 2018).
Local knowledge	Local knowledge and First Nations knowledge incorporates elements of lived experience within a landscape, bearing witness to the operation of systems. It includes aspects of people, landscape, culture – how people interact with surroundings and as part of communities and processes.
Preparation	Action taken to reduce the impact of an event that occurs and accelerate the recovery period.

Term	Definition
Recovery	A return to longer term viability.
Resilience	The ability of a system to absorb a disturbance and reorganise so as to maintain the existing functions, structure and feedbacks (Walker et. al., 2004). Also see general resilience, specified resilience, economic resilience, environmental resilience, social resilience, adaptation and transformation. Resilience may also require a change in structure, function and identity to adapt to change.
Risk	The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems (Reisinger et. al, 2020).
Shock	Sudden, short-term events that threaten a city (or region). Examples include: major storms, floods, bush fires, heatwaves, disease outbreaks, terrorism and cyber-attacks' (City of Sydney, 2018).
Social resilience	The ability of the human society to cope with a diverse range of shocks and stressors while maintaining existing social and community functions.
Stressor	An event that occurs gradually over a timeframe that causes an adverse effect, e.g. drought.
Systems	The interaction of processes, networks and inter-dependencies across a complex 'whole'.
Theory of change	Refers to theories, causal mechanisms and assumptions that explain how and why outcomes and impacts will be achieved through use, implementation and production of proposed inputs, activities and outputs (Maru et. al., 2018).
Trends	Major global or regional influences that have driven change in the past and are expected to shape change into the future.
Threshold	The point at which a change in a level or amount a controlling variable causes a system to shift to a qualitatively different regime. Also referred to as a tipping point (Folke et. al., 2010).
Transformation	The process of radically changing or building a new system with different structure, functions, feedback and identity (Folke et al., 2010).
Trigger point	A pre-agreed situation or event, that when met, activates a management intervention. Trigger points are usually defined in the planning phase (Wise et. al., 2014).

Acknowledgements

We acknowledge that Aboriginal Peoples were the First Peoples of this land. We recognise all of the Traditional Custodians of the region covering the local government areas within this plan. We pay respect to knowledge holders and community members of the land and waters and to Elders past, present and emerging.

In compliance with the United Nations Declaration of the Rights of Indigenous Peoples (2007), we wish to ensure that, while we continue to support the towns and villages in our region, maintain our communities and build viable futures for our next generations, we also ensure the Rights of Indigenous people are respected.

A successful implementation of this project would enable Aboriginal communities to be involved in advocating for good cultural, environmental, and economic outcomes.

In making decisions it will be important that we consider and manage impacts on local communities and work in partnership with them to create sustainable practices.

The Regional Drought Resilience Planning (RDRP) program is one of the four focus areas of the Commonwealth Government's Future Drought Fund (FDF). These plans focus on innovative ways to build regional drought resilience, taking steps to plan how to stem the impact of future drought on our region.

The NSW RDRP program is jointly funded through the Australian Government's FDF and the NSW Government, supporting local governments to work together regionally to plan for drought resilience proactively and pragmatically.

A note from the Mayors

We, as the Mayors of this region, are proud to present the Regional Drought Resilience Plan (the Plan). The Plan has been developed through the collaboration of the Queanbeyan-Palerang, Snowy Monaro, and Yass Valley communities. We have worked closely with the Department of Regional NSW and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to deliver this Plan.

The project was jointly funded by the Australian and NSW Governments under the Future Drought Fund. We thank them for the opportunity that funding has provided our communities.

This document highlights the fact our Councils are often called upon to help each other in times of crisis and that we have developed highly effective working relationships. This Plan is part of our ongoing commitment to that collaboration.

With recent droughts and floods, we acknowledge the need to prepare our communities for our changing climate conditions. This Plan outlines the work we need to take as a larger community to become more resilient to that change and more adaptable to the climate conditions we face.

This Plan reflects the desires of our community for us to achieve the following, even in the face of drought:

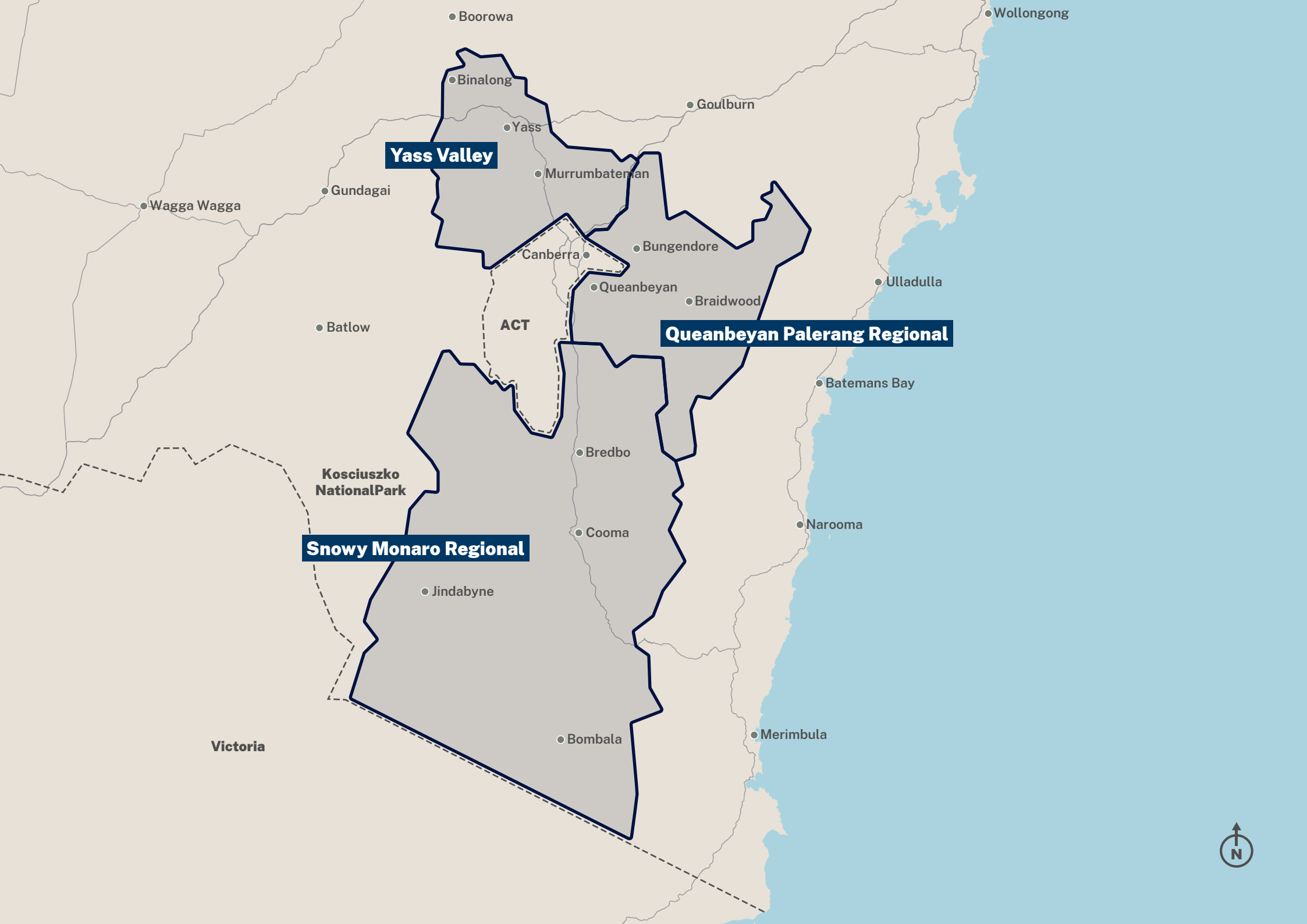
- sustainable landscapes
- connected people, cultures and improved community wellbeing.
- diverse and resilient local businesses and regional economies
- resilient built infrastructure and complementary technologies, and
- good governance models that share knowledge and promote skills development.

We acknowledge that we cannot deliver this Plan alone. We will need our communities and all levels of government to work together to deliver the outcomes presented in the Regional Drought Resilience Plan. It is through these strong partnerships and working together that we can deliver the results outlined in this Plan.

Kenrick Winchester
Mayor Queanbeyan Palerang Regional Council

Chris Hanna
Mayor Snowy Monaro Regional Council

Jasmin Jones
Mayor Yass Valley Council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Queanbeyan
Braidwood
ACT
Batlow
Queanbeyan Palerang Regional
Batemans Bay
Bredbo
Kosciuszko
NationalPark
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Quick Guide

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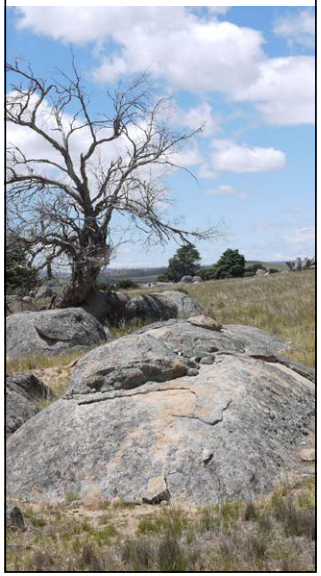
Drought Resilience



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Region and Communities

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Drought, climate and impacts

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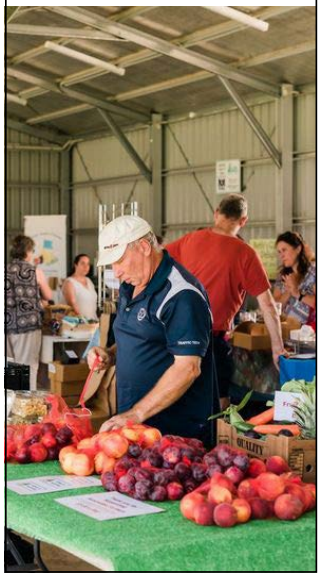
Listening to Local Experience



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Drought resilience

1. Drought Resilience

1.1. Vision

"The Plan's vision was created via an iterative process across the stakeholder workshops that were held across the three Local Government Areas (LGAs). Where workshop participants were asked to provide words that symbolised how they would feel if they were more resilient through increased strength in their economic, environmental and social components of their communities.

Following inputs from the first workshops those words most widely recognised were crafted into a vision statement and feedback sought during the second workshops. The final vision statement was tested through the Project Control Group which consisted of members from each of the Councils.

Our community has the confidence to act and address the impacts of drought, empowering us to adapt to change and advance our resilience. We are nurturing communities that thrive through collaboration and proactive planning. By fostering a culture of inclusivity, valuing local knowledge and embracing diversity, we will navigate change, ensuring a sustainable future for all generations."

1.2. Plan background

Drought is expected and will continue to impact the Southern Tableland Councils bordering the ACT into the future. Drought affects all aspects of the community, resulting in major social, economic, and environmental impacts (Abunyewah, 2023). The National Drought Agreement (signed in 2018, with a new agreement expected to come into effect in July 2024) commits the Australian, State, and Territory Governments to prioritise objectives and outcomes that enhance long-term preparedness, sustainability, resilience, and risk management for farming businesses and farming communities in Australia (Department of Agricultural, Fisheries and Forestry, 2022).

This includes establishing and operating a Future Drought Fund (FDF).

The FDF was established in 2019 to provide continuous funding for drought resilience initiatives (DAFF, 2024) The FDF seeks to enhance the public good by building drought resilience in Australia's agricultural sector, the agricultural landscape and communities. The intent is an outcome from the 2009 Inquiry into Government Drought Support which advocated for communities and farming to become more self-reliant and refocus on the broader issue of climate variability (resulting from climate change) (Productivity Commission, 2009).

The eight FDF programs include: Climate Services for Agriculture Platform, Drought Resilience Self-Assessment Tool, Farm Business Resilience, Regional Drought Resilience Planning, Drought Resilience Innovation and Adoption Hubs, four grant programs, Drought Resilience Leaders and Networks to Build Drought Resilience (DAFF, 2024)

The FDF is intended to deliver against three inter-connected strategic priorities (DAFF, 2024a):

- economic resilience for an innovative and profitable agricultural sector.
- environmental resilience for sustainable and improved functioning of farming landscapes.
- social resilience for resourceful and adaptable communities.

In February 2024, the new Commonwealth Government's Drought Resilience Funding Plan 2024 – 2028 came into effect. This Funding Plan provides a principles-based framework to guide all FDF spending. To support the Funding Plan, a Future Drought Fund Investment Strategy (2024 to 2028) will be released in mid-2024, to provide a detailed 4-year plan for drought resilience investments under the fund.

The Regional Drought Resilience Planning Program is part of the FDF (co-funded by the Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF) and the Department of Primary Industries and Regional Development (DPIRD)), which has the aim of supporting local governments to work together to proactively plan for drought resilience (DAFF, 2024) The Regional Drought Resilience Plan (this Plan) aims to:

- Identify ways for Councils to support their region's resilience to future droughts
- Devise actions communities can undertake to build their drought resilience across regions
- Following development of this Plan, implementation funding will be available to the participating consortium of Councils across Australia under the Australian Government's FDF.

The purpose of this Southern Tableland Councils bordering the ACT Drought Resilience Plan is to help support the region to better plan for, and become more resilient to, the impacts of drought over time. Resilience is important in rural and regional communities. It reinforces the connectedness of community members and their ability to manage through seasonal conditions (that create uncertainty and present a challenge to their businesses and way of life).

The most recent Annual Report for the National Drought Agreement recommends that assistance and funding for drought resilience should be identified through a greater level of community-driven, place-based resilience activities. This reflects the growing recognition that communities are best able to self-identify what actions or skills sets they need to increase their resilience to drought (DAFF, 2023). Moreover, it recognises the unique challenges communities face from successive droughts and a community's unique demographic, social, and economic characteristics – requiring governments to design and deliver bespoke approaches to service delivery (DPIRD, 2022).In accordance with this, this Plan has been co-designed between the three Councils and their respective communities in a collaborative, partnership approach that has drawn on the experience and input of those who live and work in the region.

This Plan provides an opportunity to identify actions that will directly assist the region to strengthen social, economic and environmental resilience, supporting communities in future droughts. It builds on the wealth of drought effort, research, and planning across the three LGAs - as well as the NSW and Commonwealth's work and investment including the Regional Economic Development Strategies, the Regional Water Strategies, and the FDF.

These regional Councils recognise the importance of preparing for and developing a robust community in good times to lessen the impact of drought and accelerate the recovery period. This Plan looks at how the whole of the community can benefit from working together to strengthen resilience.

In November 2022, the NSW Government released a refreshed Vision for Regional NSW. 'Our Vision for Regional Communities' sets out the next wave of priorities – and is backed by a targeted plan to bring them to life. The Plan focuses on how the NSW Government is planning for the next generation and beyond, with the intention to build strong communities that have the skills, knowledge, infrastructure, and quality local services. This also includes building resilient communities with the capacity to withstand times of economic and social hardship and shocks like drought by working with local communities to make life better across regional NSW (NSW Government, 2022).

In February 2024, the new Drought Resilience Funding Plan 2024 – 2028 came into effect. This Funding Plan provides a principles-based framework to guide all FDF spending. To support the Funding Plan, a Future Drought Fund Investment Strategy (2024 to 2028) will be released in late-2024, to provide a detailed 4-year plan for drought resilience investments under the fund. Implementation funding will be available for approved plans under the Australian Government's FDF.

1.3. Key inputs to the Plan

The following documents were considered through the development of this Plan and incorporated into the stakeholder engagement activities. Please note this is not a comprehensive list of the literature that was reviewed to inform the Plan.

Regional documents including:

- Respective council's strategic planning documents (QPRC, SMRC and YVC)
- Local economic development strategies
- NSW Regional Water Strategies
- Draft Regional Water Strategies:
  - Murrumbidgee River
  - Murray Darling Basin Authority Plan and related documents
- Regional Economic Development Strategies (Queanbeyan-Palerang, Snowy Monaro, Southern Tablelands)
- Resilience Principles - Infrastructure Australia's approach to resilience
- Charles Sturt University Southern Innovation Hub Baselining Drought - Developing a baseline understanding of farmer and community perceptions of drought
- Drought Resilience, Adaptation and Management Policy (DRAMP) Framework 2018
- Commonwealth Scientific and Industrial Research

Organisation (CSIRO) Drought Resilience mission (2022)

- NSW Government: draft South East and Tablelands Regional Plan 2041
- Canberra Region Joint Organisation – Statement of Strategic Priorities
- South East NSW Resilience Blueprint (2022)
- Government organisation publications including Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), Australian Bureau of Statistics (ABS), Bureau of Meteorology (BoM), CSIRO, Infrastructure Australia, Productivity Commission, Rural Industries Research and Development Corporation (RIRDC), Grains Research and Development Corporation (GRDC) and others.
- Government department publications including DAFF (formerly Department of Agriculture)
- Academic publications.

Additionally, contributions from a broad range of community and stakeholders – including community organisations, First Nations, businesses, service industries, producers, and volunteers – were instrumental in the co-design of this Plan.

It is intended for this Plan to be a living document and to be considered and factored into a range of other plans and strategies by local government, state government, non-government organisations, not-for-profits, businesses, and others.

1.4. A Plan for drought resilience

Of all climate and weather-related conditions affecting Australia, drought is often the most challenging, with the Southern Tablelands Councils bordering the ACT region being prone to periods of persistent drought with downward trends in rainfall and streamflow being well documented.

Drought is a defining feature of the climatic cycle of the Australian landscape. In a large part this owes to our geography. Our continent spans the latitudes of the subtropical high-pressure belt. This is an area of sinking, dry, stable air and usually clear skies. The far north and south of the country come under the influence of reasonably regular rain-bearing systems for at least part of the year. The east coast is normally well watered by moisture from weather driven by the Tasman and Coral Seas. However, over most of the country rainfall is low and erratic. Even in the wetter areas, very dry years can disrupt normal activities and lead to water shortages (BOM, n.d.).

As such, droughts will come again, and they are anticipated to get worse in parts of the country as a result of a changing climate (Department of Agriculture, 2019; (Timbal, 2015); (CSIRO and BoM, 2023) Droughts are challenging, not just for farming families, but entire communities and regions.

The costs of drought are spread across economic, social, and environmental factors. The toll taken on regions and their communities has been enormous and the impacts often linger for decades.

1.5. Drought resilience framework

1.5.1. Defining resilience

Resilience is a broad concept that encompasses a range of interconnected factors and conditions. For a system to be resilient it must have the ability to absorb a disturbance (sometimes referred to as shocks and stresses) and reorganise to maintain the existing function's structure (Walker et al., 2004). However, it is important that the system maintains options to develop and remains open to transformative and non-linear change (Nelson, 2011).

1.5.2. Resilience capacity

This Plan focusses on three types of resilience capacity (see Figure 1). Absorptive capacity is often described in traditional resilience terms as the ability to absorb shocks or to 'bounce-back' (Haider & Cleaver, 2023) (Haider & Cleaver, 2023). Adaptive capacity is the next step on the resilience journey and entails having the necessary resources to learn and adapt the system (Haider & Cleaver, 2023). However, it is increasingly being recognised that adaptation is insufficient to deal with large-scale environmental issues like climate change. Transformation, which is the shift to a new system including change in priorities and leading to changes across multiple scales, is sometimes the best way to deal with large scale issues. However, transformation is not always needed or 'good' and in certain circumstances adaptation is the best course of action (Haider & Cleaver, 2023). These three concepts are used in Section 5 to indicate how the proposed resilience action may contribute to resilience building in the region.

Resilience thinking

Resilience thinking incorporates the notions of absorption, adaptation, and transformation into a unified approach. It investigates how multiple systems, including people and environmental systems, can still operate when there are disruptions and uncertainty (Stockholm Resilience Centre, n.d.). It offers a structured framework and principles for developing plans and strategies aimed at enhancing resilience across all levels, from national, regional, and local (Folke et. al., 2010; Greet et al., 2021).

These different capacities are vital components of building resilience, and this holistic perspective acknowledges resilience is not a one-size-fits-all concept and tailored approaches are necessary to address the diverse and dynamic challenges communities, ecosystems, and organisations / businesses face.

Creating a resilient community demands there to be an awareness of the nature of disasters in the region, acknowledge where the community is vulnerable to allow for growth, and not be afraid to probe the boundaries of a resilience system (Greet et al., 2021). The components integrated in resilience thinking are vital if a region, community or business are to thrive, but building resilience cannot be achievable if it isn't an 'all hands-on deck approach' (Greet et al., 2021).

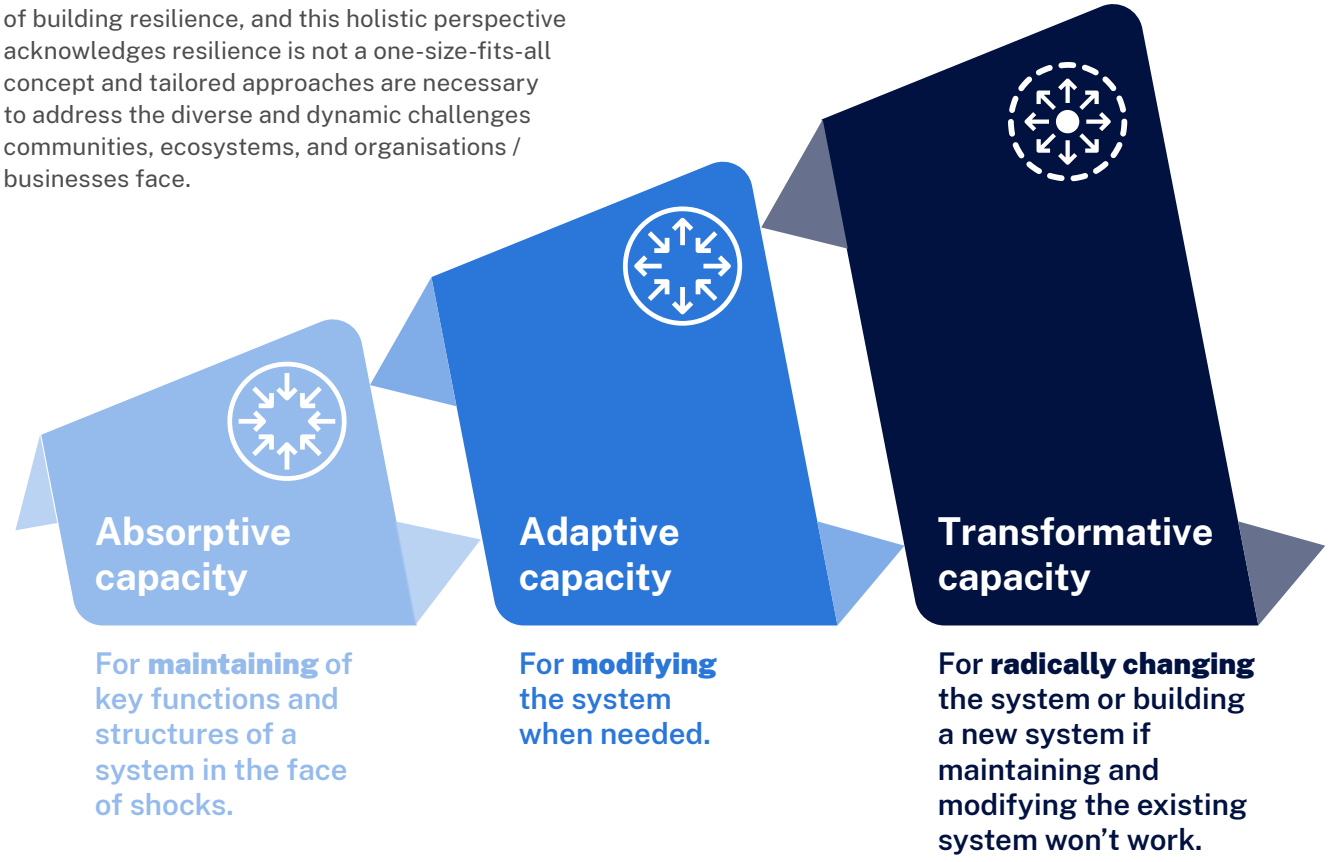


Figure 1 Resilience capacity

Resilience assessment

ABARES developed a national index to rank rural or regional communities by their potential to be adversely affected by drought (ABARES, 2022a). As shown in Figure 2, this index combines drought exposure and drought sensitivity (at the farm enterprise level), and data representing community sensitivity (agricultural dependence of a community), to initially produce an index of 'Potential drought impact' (PDI).

Within the Farm Sensitivity measure there is drought exposure and drought sensitivity. Drought exposure represents the amount of external stress farm enterprises experience due to the climate variability they are exposed to at their location (ABARES, 2022a). Drought sensitivity represents the effects that climate variability has on farm outcomes, reflecting the responsiveness of farm production systems to short-term climate variability and short-term management responses (ABARES, 2022a). Currently, only broadacre farms are represented by this indicator.

The Community Sensitivity measure represents the reliance of a LGA on employment in agricultural production industries (broadacre and irrigated) and related downstream food and beverage manufacturing (for example, meat processing, dairy product manufacturing and fruit and vegetable processing) (ABARES, 2022a). Community sensitivity is measured as the proportion of people employed in those agricultural industries compared to total employment in the LGA.

This PDI index can be applied consistently across LGAs and together with an understanding of their adaptive capacity provides comparison of the community's resilience and vulnerability to drought. The PDI index highlights the need for drought resilience plans to consider the risk and exposure of a region to drought

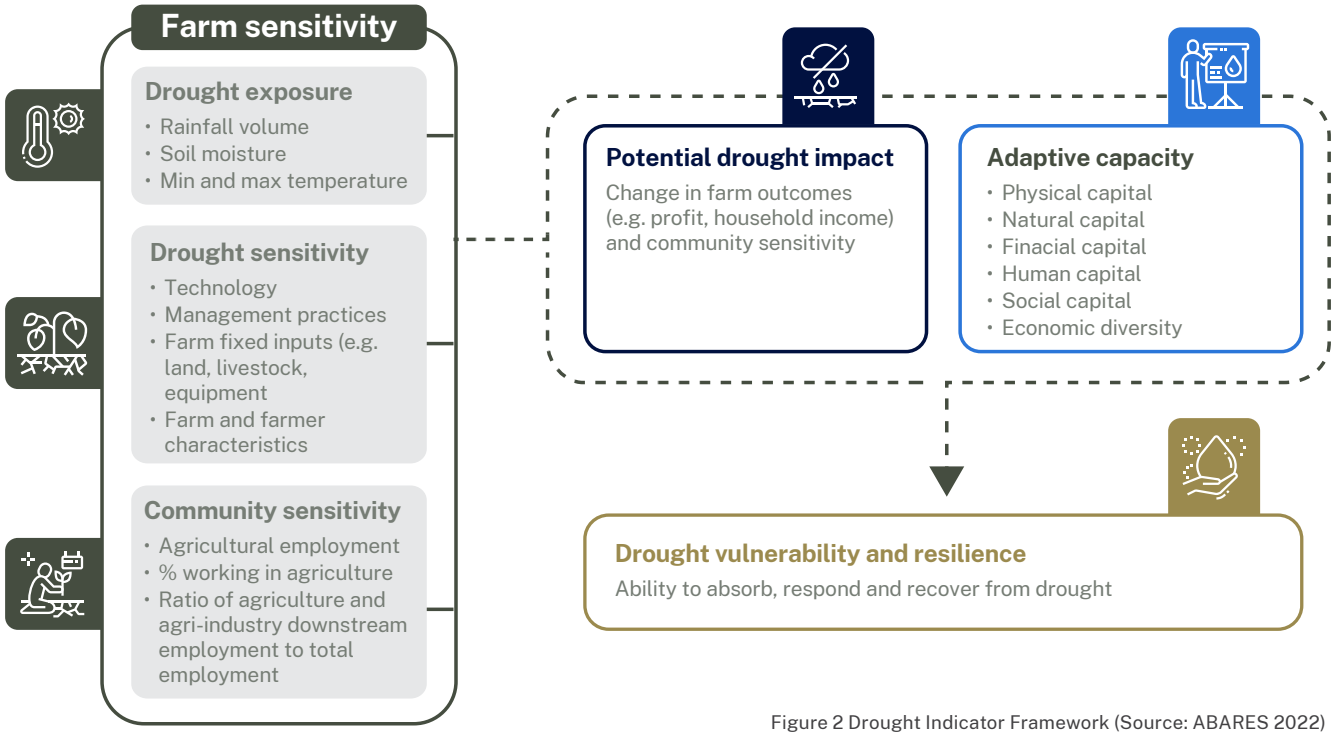


Figure 2 Drought Indicator Framework (Source: ABARES 2022)

(such as considering the PDI ranking) and how that can be minimised, as well as how a community can build in adaptive capacity to manage the impact of droughts (overall drought vulnerability and resilience). Whether the PDI will cause lasting loss or harm depends on the community's adaptive capacity (ABARES, 2022a).

The project is ongoing, and the next step includes developing indicators of potential adaptive capacity of communities, to better understand the likely resilience of a community to drought (ABARES, 2022a). Consequently, the output of the framework would be a measure of drought vulnerability and resilience, describing the degree to which Australian agriculturally dependent communities are likely to be adversely affected by a drought and their ability to withstand those impacts.

While the adaptive capacity measure is yet to be fully developed, the economic diversity index (EDI), which is a sub-component of adaptive capacity, has been calculated for all LGAs. "The EDI reflects the composition of the local economy across all industry of employment sectors compared to the Australian economy" (ABARES, 2022a). The EDI scale ranges from zero (0) to one (1) and a score closer to one (1) indicates that the LGA has an employment composition resembling that of Australia (ABARES, 2022a). A low EDI score, therefore, represents a less diverse economy (ABARES, 2022a). This index also correlates with population density and access to services, as communities that exhibit the highest levels of economic diversity are usually the larger population centres (ABARES, 2022a). The EDI of each of the three LGAs is summarised in Table 1. All three LGAs demonstrate a medium-high economic diversity.

The ABARES technical report (2022a) lists five forms of capital, or resources, which are positively related to the community's ability to manage or cope with impacts. These are:

- human capital—labour and influences on the productivity of labour, including education, skills and health
- social capital—claims on others by virtue of social relationship
- natural capital—land, water, and biological resources
- physical capital—produced by economic activity, including infrastructure, equipment and technology
- financial capital— savings and credit

A Tableau© dashboard generates an ordinal (0 to 1) Potential Drought Impact (PDI) ranking of agriculturally dependent communities based on their potential to be impacted by drought. The most sensitive LGAs (with both high farm sensitivity and high community sensitivity) receive a ranking near 1 and the least (with both low farm sensitivity and low community sensitivity) receive a rating near 0 (ABARES, 2022a).

Table 1 provides the data contained in the Tableau© dashboard as well as including the Index of Socio-Economic Advantage and Disadvantage (IRSAD). The IRSAD is one of the socio-economic indexes for Australia (SEIFA). The IRSAD summarises information about the economic and social conditions of people

Local Government Area (LGA)	Economic Diversity Index (Ranges from 0-1)*	Socio-economic advantage / disadvantage (SEIFA decile) (Ranges from 0-10)**	Farm Sensitivity (FS) (Ranges from 0-1)*	Community Sensitivity CS (Ranges from 0-1)*	Potential Drought Impact (Ranges from 0-1)*
Queanbeyan-Palerang	0.59	9	N/A	0.03	0.02
Snowy Monaro	0.67	8	0.16	0.13	0.19
Yass Valley	0.68	10	0.00	0.12	0.08

* Source: ABARES, 2022b **Source: ABS, 2021b

Table 1 ABARES drought indicator framework outputs by LGA

and households. SEIFA indexes orders areas from lowest to highest, with decile 1 representing the most disadvantaged areas relative to other areas, and 10 representing the most advantaged areas. Table 1 shows that all three LGAs in this study feature as strong socio-economic regions, being placed in the 8-10 SEIFA decile.

Table 1 also summarises the farm sensitivity (FS) and community sensitivity (CS) for each LGA. All three LGAs have a very low farm sensitivity and low community sensitivity in comparison with other regions across NSW and Australia. As mentioned above, the PDI is determined as a function of farm sensitivity (drought exposure and drought sensitivity at farm enterprise level) and community sensitivity. The PDI does not capture the actual degree or level of potential drought impact, but rather an LGAs relative ranking of potential drought impact against other LGAs. When considering these factors, each of the three LGAs have a low PDI in comparison with other regions across NSW and Australia. The Snowy Monaro Regional Council has the highest score of 0.19 and Queanbeyan-Palerang Regional Council has the lowest score of 0.02 of very limited potential drought impact. Yass Valley is placed between the two other regions with 0.08. Based on these PDI's – and in conjunction with additional vulnerability indicators such as EDI, SEIFA, climate vulnerability and other demographic characteristics - the region already has a strong degree of resilience for drought and can further maintain and further strengthen its resilience.

Further information relating to climate vulnerability is provided in Section 3.5.2 and further information relating demographic characteristics is discussed in section 2.

Shocks and stresses

Shocks and stressors need to be considered in resilience assessment. Figure 3 describes episodic and chronic stressors.

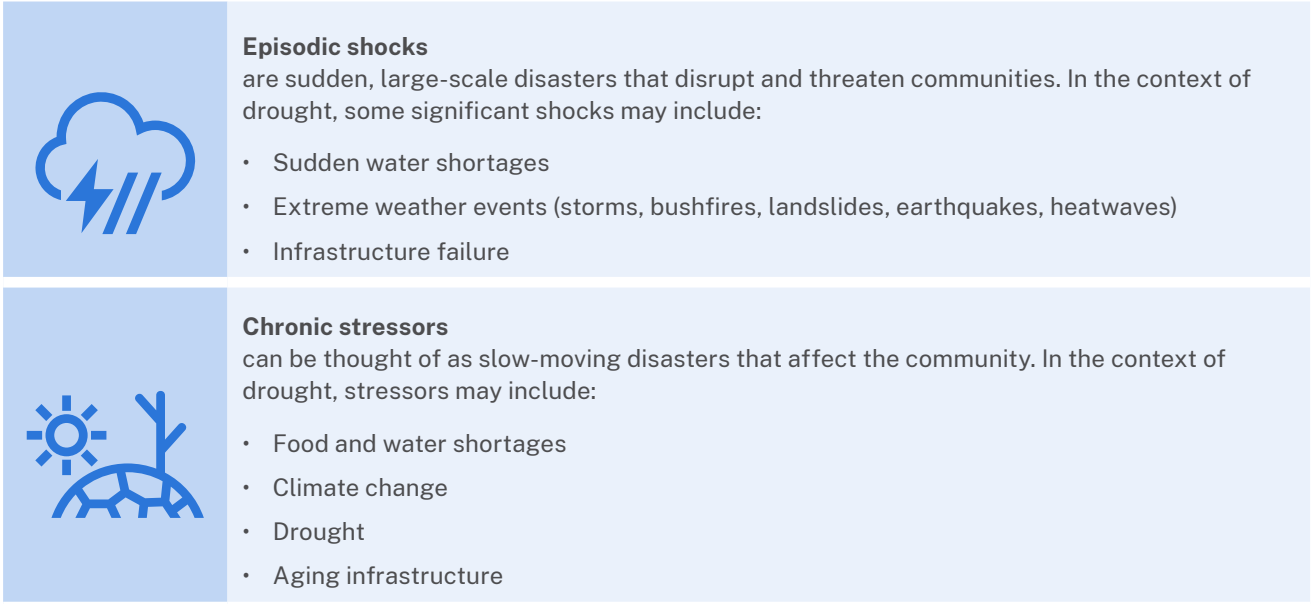


Figure 3 Shocks and stressors

Drought significantly impacts economic activities, particularly in agriculture, which is often the most affected sector. Reduced precipitation leads to lower crop yields and livestock productivity, which in turn affects food security and income for farming families. This economic strain can lead to unemployment, decreased local business revenues, and increased costs for food and water, exacerbating poverty levels in vulnerable communities.

Moreover, the economic consequences of drought extend beyond immediate agricultural losses. They can trigger a series of indirect effects, such as increased migration as families leave drought-stricken areas in search of better opportunities, which can destabilise local economies and social structures. The interconnectedness of the food-water-energy nexus means that economic impacts can ripple through various sectors, affecting everything from energy prices to urban development.

The social impacts of drought are profound and multifaceted. Drought can lead to significant health issues, including mental health challenges due to stress and anxiety related to economic instability and food insecurity. Vulnerable populations, particularly women and children, often bear the brunt of these social impacts, as they are typically assuming greater responsibilities for on and off-farm labour. This burden can limit their access to education and economic opportunities.

Social cohesion within communities can also be affected. Drought may foster mistrust in government and institutions, particularly if responses to the crisis are perceived as inadequate. This erosion of trust can hinder community resilience and complicate recovery efforts. Furthermore, social networks that provide support during crises can be strained, leading to increased isolation and vulnerability among affected individuals.

Drought has significant environmental consequences, impacting ecosystems and biodiversity. Water scarcity can lead to habitat degradation, reduced agricultural productivity, and increased susceptibility to wildfires, which can further exacerbate environmental stress and lead to loss of biodiversity. The degradation of natural resources not only affects the environment but also diminishes the livelihoods of communities that depend on these resources for their survival.

The relationship between environmental factors and drought is cyclical; for instance, environmental degradation can increase the severity of drought impacts, while drought can lead to further environmental degradation, such as desertification and loss of arable land. This creates a feedback loop where each factor exacerbates the others, complicating recovery efforts and increasing the overall vulnerability of affected communities.

The interplay between economic, social, and environmental factors creates cascading impacts that can be devastating. For instance, a drought that reduces agricultural output can lead to economic decline, which in turn can increase social tensions and health issues, further straining community resilience. These cascading effects highlight the need for integrated approaches that consider the interconnectedness of these factors.

Types of resilience

To establish a holistic approach towards resilience, a broad range of systems must be considered, including social resilience, economic resilience and environmental resilience. Each of these dimensions is relevant in its own way and they are all strongly interconnected, allowing there to be coordinated adaption in building resilience.

Economic
focuses on the ability of local economies to adapt to and recover from the economic shocks caused by drought. This may include diversifying the local economy, supporting businesses that are drought-resistant, and providing financial resources to mitigate economic losses during drought events (DPIE, 2021).

Social
the ability of individuals and communities to withstand the psychological and social impacts of drought. It involves fostering strong social networks, community cohesion, and mental health support systems to help people cope with the stress and challenges associated with water scarcity.

Environment
centres on the capacity of natural ecosystems and water resources to endure and recover from the ecological impacts of drought. This may involve protecting and restoring habitats, improving water conservation practices, and preserving biodiversity to maintain ecosystem services during and after drought.

1.6. Drought resilience at a glance

The journey for developing this Plan for the Southern Tablelands Councils bordering the ACT is illustrated in Figure 4. The process recognises communities of the three LGAs have been consulted about drought previously; this Plan builds on this work.

When it comes to drought, "our best defence against the shocks of drought is to prepare. Planning for greater drought resilience across all aspects of regional and remote communities, not just for primary producers, will have the greatest impact. Resilience can be achieved by building sustainable and diverse regional economies, reducing the vulnerability of communities to changing economic conditions, accelerating recovery, and enhancing the natural environment" (DRNSW, 2022).

The impact of multiple events such as the Black Summer bushfires, floods of 2021 and 2022, mice plagues, and COVID-19 related supply chain and labour force disruptions, are likely to compound drought recovery challenges in the short term (DRNSW, 2022).

The process recognises communities in the Southern Tableland Councils bordering the ACT have been consulted about drought previously; this Plan builds on this work. Figure 5 provides a graphical representation of the insights gathered on the topics of drought and enhancing resilience in the Southern Tableland Councils bordering the ACT. It captures the voices, ideas, and aspirations expressed by the residents and stakeholders who live, work, and form these communities.

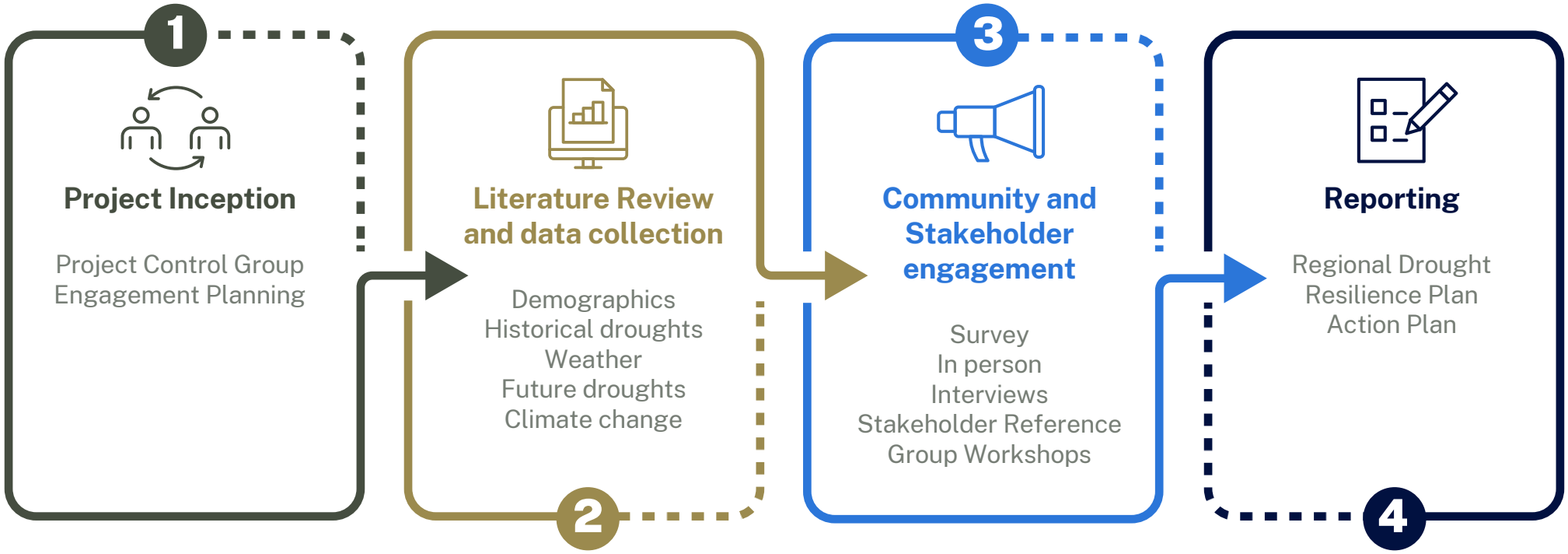


Figure 4 The Drought Resilience Journey

Figure 5 What was previously heard – at a glance

1.7. Development of the Plan

Through the development of the Plan, five key themes emerged (Figure 6). Each of these themes was expanded and used as a basis for the Plan. The development of this Plan has been guided by a Project Control Group (PCG) comprising representatives from Queanbeyan-Palerang Regional Council, Snowy Monaro Regional Council, Yass Valley Council, Department of Primary Industries and Regional Development and consultants. A three phased approach was used, focussed on community-led development of themes, vision and actions.

Phase 1: Understanding the community profile, what is known about drought in the region, the lessons learnt and the region's greatest risks

Phase 1 involved the formation of a Project Control Group (PCG) which consisted of members of the three Councils, Department of Primary Industries and Regional Development, stakeholders. The PCG provided inputs and guided the development of the Plan. They also assisted with arrangements for community and stakeholder engagement activities. This phase of the project also included a review of literature to better understand the community profile, what we currently know about drought in the region, the lessons learnt from previous droughts and where the greatest risks lie. Some of the sources utilised are outlined in Section 1.3. The literature review informed future phases of the project including identification of Plan themes and ensures the Plan is built on past work and programs.

Phase 2: Community and stakeholder engagement to identify, test and understand the regional opportunities

Phase 2 comprised the delivery of the engagement approach. A review of Councils' Community Strategic Plans resulted in the development of five initial common themes. These themes were tested with the stakeholders through the workshops and with the PCG to make sure they were a sound representation of the region's key areas of focus. These themes were then used for categorising and analysing the actions and initiatives identified during the Phase 1 review and in the series of resilience workshops (Stakeholder Reference Group (SRG) meetings).

Originally, two in-person workshops per LGA alongside a series of targeted interviews with other agencies and community members were proposed. Due to challenges with availability and distance, alternative arrangements were required for Queanbeyan Palerang LGA and Snowy Monaro LGA. For these LGAs, one-on-one interviews and small group online workshops were held alongside the initial workshop. This reduced the richness of the information gleaned as there was little ability to interact with each other and build and/or test ideas. Given the time restraints of the project, adequate engagement with a broad section of the community was not necessarily obtained. An in-depth stakeholder mapping exercise that identifies the small and hard to engage with segments of the community such that inputs from these community members could be pursued would be beneficial for the future update of the plan. Learning from this plan and Councils regarding constraints to engagement is required.

Figure 6 Five key themes of the Plan

The SRGs were held with targeted regional stakeholders to test the findings from Phase 1 and identify strategic opportunities. A range of community members were invited to participate. These included but are not limited to:

- Local businesses/ business chambers
- Manufacturers
- Primary producers/agribusinesses and agricultural suppliers
- Progress associations/ community committees
- Educational providers (schools)
- Tourism operators/corporations
- Sporting clubs/associations
- Councillors
- Agencies (Local Land Service (LLS))

The Local Aboriginal groups and/or Elders or representatives were engaged in one-on-one settings rather than workshops as it was expressed this was more comfortable for them. A first nations representative from Queanbeyan Palerang was engaged and provided input to the plan.

During the first workshop, key drought related impacts (Section 4.3) were discussed and identified for each of the themes, with major impacts rated as low, medium or high. Initial ideas for actions were encouraged from the stakeholders and developed through discussion within the group. The second workshop focussed on further developing the actions and starting the process of prioritisation.

Simultaneous to the workshops, targeted interviews were conducted with a number of organisations and agencies. These included:

- NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Destination NSW
- Local Land Services (LLS)

Additional to the workshops and targeted interviews, a community survey was promoted by each of the Councils to ensure those who were unable to attend workshops or be invited to interviews were able to express their views and input into the plan.

Community engagement was designed with the communities' diverse needs and perspectives in mind. The engagement activities were designed to encourage meaningful conversations and insights from the broad range of community. Engagement allowed people to express information in their own words so that local voices and needs were highlighted. The engagement combined the use of in-person and digital methods, ensuring inclusivity and transparency throughout the process. An overview of the engagement activities is provided in Figure 7.

Stakeholder Reference Group (SRG) Meetings
9 SRG sessions were held between May 2024 and June 2024. They comprised of representatives from the local government areas, community subject matter experts, project team members, and other stakeholders. Over 65 stakeholders were invited to participate in the SRG's. 34 members provided ideas, insights and feedback.

Targeted interviews with stakeholders
Targeted interviews with 12 industry and community members to obtain more detailed input on the drought work already undertaken in the region.

Online Survey
Using digital tools and publishing a survey enabled engagement of a broader audience and made participation more convenient for community members. 114 survey responses were received and formed part of the feedback that informed the recommendations included within this Plan.

Online Meetings and phone calls
Phone calls and hosting online meetings provided the opportunity to bridge geographical gaps, ensuring a wider array of stakeholders could provide insights without the constraints of location. This method enabled in-depth discussions, capturing the communities' perspectives, and concerns. A total of 7 PCG meetings were held.

Email Communication
Employing email outreach provided an additional channel for engaging with stakeholders. It enabled targeted stakeholders, in remote areas, to share their insights in a convenient manner. This approach not only facilitated the collection of valuable data but also allowed for a thoughtful, well-documented exchange of ideas and feedback.

Figure 7 Summary of engagement

Phase 3: Prioritise and develop the Plan

Phase 3 consisted of prioritising the opportunities (through the SRG and PCG) and documenting each in this Plan. The investment logic framework (Section 4.4) was applied to the long list of actions to better identify priority actions. These opportunities are organised using the thematic framework shown in Figure 8. The themes highlight the public sentiment that improving drought resilience in the broader community and region, along with diversifying and value-adding to the agricultural industry, will benefit the region's response to drought. Figure 9 identifies how actions can be progressed now, that align with the Councils' ability to influence and will improve outcomes for the community.

The communities of the Southern Tableland Councils bordering the ACT have initiated several actions within their communities, developed through successive droughts. Those actions have been built on in this Plan in an effort to improve the region's drought resilience. These actions include innovative farming and production practices, advocating for improved water security and reliability, community health and well-being, protecting landscape health and natural resource management, investing in the region's people in various sectors, and sharing information and knowledge for the benefit of all. Building and extending this work is the foundation of this Plan. The PCG provided final review of the Plan before it was sent to CSIRO for review. The PCG was also involved in the final updates before the Plan was published and publicly available.

Economy – Robust and resilient local economies and agricultural businesses	**Environment – Maintain and protect the natural environment**	**Governance – Strong leadership and collaboration**	**Community – Vibrant, connected and sustained communities**	**Infrastructure – Build assets and climate adapted design**
A strong and innovative economy will be cultivated by diversifying industries, promoting tourism, and encouraging investment in new economic opportunities.	The region's environment will be protected and enhanced through sustainable practices and improved water management systems.	Transparent and inclusive leadership will be promoted through knowledge sharing, robust connectivity, and coordinated efforts to ensure effective disaster responses and resilient community support systems.	Empowered and resilient communities will be supported by promoting community cohesion, improving access to essential services, and enhancing local capacity to respond to drought.	Robust and adaptive infrastructure will improve the regions connectivity, support infrastructure development, promote effective water management, and elevate the region's attractiveness as a destination to visit, live or operate business from.

Figure 8 Detailed five key themes of the Plan

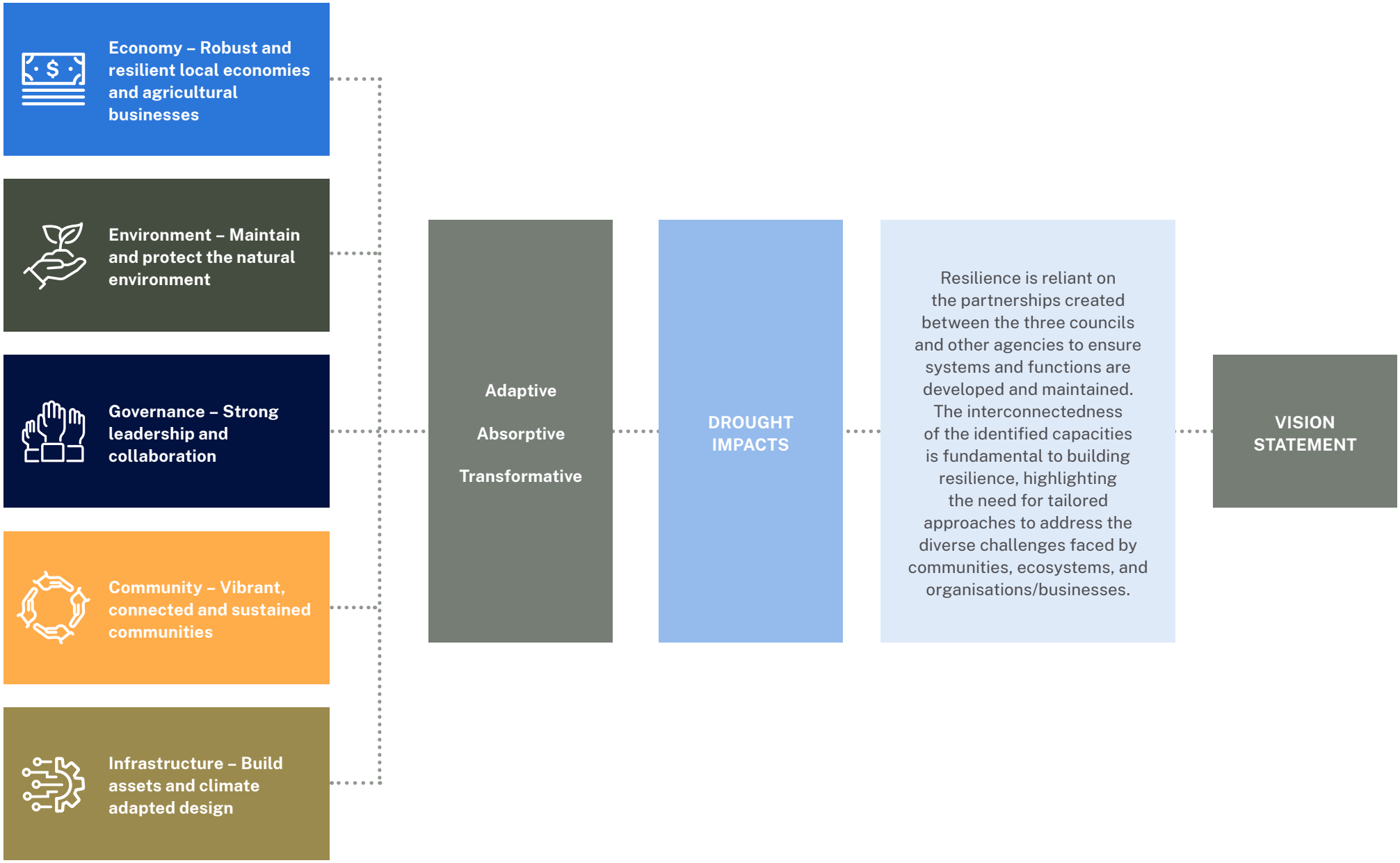


Figure 9 Process used for building drought resilience

02

Region and communities

2. Region and Communities

2.1. Introduction to the region

This Plan for the Southern Tableland Councils bordering the ACT region comprises the Local Government Areas (LGAs) of Snowy-Monaro, Queanbeyan-Palerang and Yass Valley. The three LGAs cover approximately 2.4 million hectares and are home to over 102,251 people (ABS, 2021b). Queanbeyan is the largest city within the region, followed by Cooma and Yass. Due to their proximity to the ACT, Canberra provides employment opportunities in public service and health care which are important to the region.

Water security is a key objective for the region. Water from the region is critical for First Nations People, the natural environment, agriculture, recreation and tourism. Important rivers in the region include the Murrumbidgee River, Snowy River, Goodradigbee River and Yass River, which work in conjunction with the local dams in the area to meet the water usage needs of the region in line with expected population growth, but also Sydney through the Greater Sydney Water Strategy (NSW Government, 2022).

Local economy

The average unemployment rate across the three LGAs in December 2023 was 2.9% which is lower than the unemployment rate for NSW (4.9%) (Australian Government, 2023). Figure 10 illustrates a shift in the diversity of industries, livelihoods and employment opportunities across the three LGAs. Using a time series analysis from the 2016 and 2021 Census' (due to Council mergers in 2016, the 2011 Census data was unable to be used), it shows the incline in non-agricultural industries such as 'public administration and safety', 'health care and social assistance'. There was a large increase in 'construction' across all LGAs, with each growing in the 5-year period by over 30%. The diversity in the industries and indicators shows a future ability for LGAs to weather droughts in the future.

The agriculture, forestry and fishing industry, which would have traditionally been dominant in these LGAs has decreased. Figure 11 shows that involvement in the industry did grow in the Queanbeyan-Palerang LGA and the Yass Valley LGA by 11% and 3% respectively, while involvement dropped in the Snowy Monaro LGA by 2%.

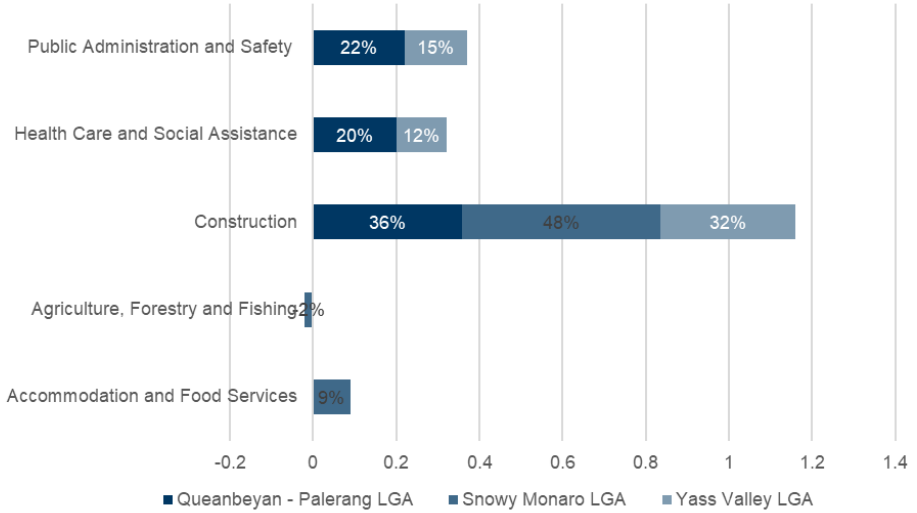


Figure 10 Time series data by Top 3 industry per LGA 2016 and 2021.

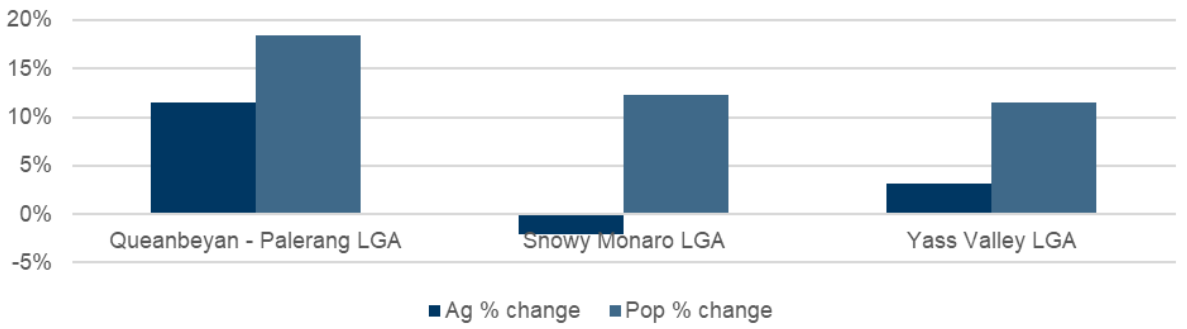


Figure 11 Time series data for Agriculture, Forestry and Fishing. Both (Source: ABS 2021)

2.1.1. Queanbeyan-Palerang LGA

The QPRC covers an area of 531,901 hectares and hosting a population of 63,304 (ABS, 2021b) Figure 12 shows that QPRC boasts a diverse range of industries, with the largest industry being public administration and safety (26.2%), followed by construction (11.6%) and health care and social assistance (9.7%). Queanbeyan's proximity to Canberra means many Queanbeyan residents are able to take up employment opportunities in the federal public service and defence. The NSW Government has been investing in economic diversification for the region, aiming to strengthen the industries of construction, manufacturing, tourism, and agriculture (NSW Government, 2023a).

The construction sector in QPRC is emerging as a key industry for the region. Construction services provided 62.5% of gross value added (GVA) to the region, indicating its important role in QPRC's economic future. Additionally, Queanbeyan's construction industry provides housing construction to the ACT, which further supports the region and provides income to local businesses (NSW Government, 2023a).

Heritage values in the QPRC are a key driver of tourism. Historic towns, such as Braidwood, Araluen, and Captains Flat, provide important rest stops for travellers to the coast. This, combined with the historic heritage value of the towns, provides a unique tourist attraction for the region. Additionally, the region benefits from events in Canberra, which can provide opportunities for "satellite events" that support the region's tourism economy (NSW Government, 2023a). The launch of the Treasure Trail campaign in 2020 has sought to lift the tourism industry in the region post-COVID (Queanbeyan-Palerang Regional Council, n.d.).

The Queanbeyan-Palerang LGA's population represents 0.7% of the total population of NSW. The median household income per week for the Queanbeyan-Palerang LGA is $2,295, which is 25% greater than the NSW median household income per week of $1,829. Additionally, the unemployment rate (as of December 2023) is 3.1% in Queanbeyan-Palerang, which is well below the NSW rate of 4.9%. Labour force participation is 11.7% greater than NSW, at 70.4% compared to NSW's 58.7%.

Key industry takeaways:

- Accommodation and food services are the region's largest employer however, the main engine industries for the region are construction and public administration and safety.
- $23 million investment into the South Jerrabomberra Regional Job Precinct aims to transform the employment opportunities in the public service and defence. This investment targets sectors like defence, space exploration, cybersecurity, information technology, and scientific research (NSW Government , 2023d). Infrastructure improvements follow such investment with a particular focus on roads, utilities and communication network.
- 6.1 % growth in the healthcare and social assistance industry between 2011 to 2020 (NSW Government, 2023a).
- Aim to focus on working with ACT government to better utilise health services. The region's main hospital is the Queanbeyan District Hospital which contains an extensive Mental Health team including, psychologists, mental health nurses, and occupational therapists provide case management, assessment, referral, and counselling services.

QUEANBEYAN-PALERANG REGIONAL LGA

Population characteristics

Queanbeyan-Palerang Regional population 2021
63,304

Aboriginal and Torres Strait Islander population
2,190

Population by 2041
83,550

Estimated annual population growth rate of 1.6%

Age distribution

Median age

Queanbeyan-Palerang	38 years
NSW	39 years

Born overseas

Queanbeyan-Palerang	18.3%
NSW	29.3%

Speaks a language other than English

Queanbeyan-Palerang	13.5%
NSW	26.6%

With the top 3 most spoken language other than English in Queanbeyan-Palerang including:

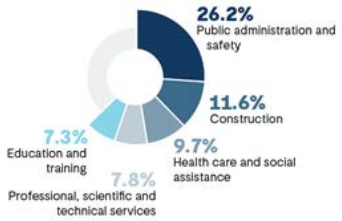
- Macedonian – 1.4%
- Punjabi – 1.3%
- Italian – 0.9%

Require assistance with core activities

Queanbeyan-Palerang	2.1%
NSW	2.7%

Work and economy

Top industries of employment



Top occupations

Unemployment

Queanbeyan-Palerang	3.1%
NSW	4.9%

Labour force participation

Queanbeyan-Palerang	70.5%
NSW	58.7%

Journey to work by car

Queanbeyan-Palerang	73.5%
NSW	46.6%

Median individual income

Queanbeyan-Palerang	$1,159
NSW	$813

Median household income

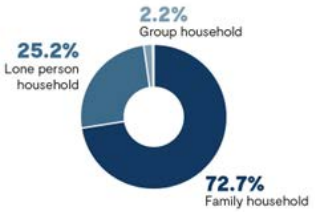
Queanbeyan-Palerang	$2,295
NSW	$1,829

QUEANBEYAN-PALERANG REGIONAL LGA

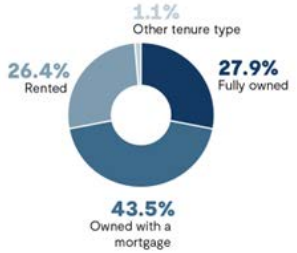
Family and dwelling characteristics

- **71** suburbs
- Average household size **2.6** people
- **73.9%** of residential dwellings are separate houses
- **3.5%** of households had no motor vehicle
- **91.3%** of residential dwellings are occupied
- **80.2%** of people have lived at the same address as one year ago
- **20.0%** of people experience rental stress
- **2.7%** rent social housing

Household type



Tenure type



Education and qualifications

Have completed Year 12 or equivalent

Queanbeyan-Palerang	64.2%
NSW	58.9%

Have completed a Bachelor's degree

Queanbeyan-Palerang	27.6%
NSW	32.9%

Have completed a Certificate level (total)

Queanbeyan-Palerang	34.1%
NSW	32.3%

Community and wellbeing

59.4%

reported having no long-term health conditions in the 2021 Census. Of those who reported long-term health conditions, the most common where:

- Mental health condition
- Arthritis
- Asthma

Score of 9 within NSW and Australia

in terms of their relative socio-economic advantage and disadvantage (IRSAD). This indicates a high level of advantage in Queanbeyan-Palerang when compared to the rest of NSW and Australia.

Participated in volunteering

Queanbeyan-Palerang	16.5%
NSW	13.0%

Figure 12 Socio-economic summary of the Queanbeyan-Palerang Regional LGA (ABS, 2023), (ABS, 2022)

2.1.2. Snowy-Monaro LGA

The Snowy-Monaro Regional Council (SMRC) covers an area of approximately 1,516,419 hectares and had an estimated resident population of 22,132 in 2023 (ABS, 2024). The Snowy-Monaro region has a rich history marked by significant events that continue to shape its character today. The Ngarigo people have called the Monaro region home for generations. A gold rush in the 1850s saw a wave of migration into the region but had finished by the 1900s. Historic gold mining villages, including Kiandra and Cowra Creek, continue to be critical to the identity of the region. The construction of the Snowy Mountains Hydro-Electric Scheme between 1949 and 1974 has had an enduring impact on the region, providing major infrastructure for the entire nation, employment opportunities for the local area with over 100,000 people working on the Scheme, 65% of which were migrant workers into Australia (National Archives Australia, 2024). The Snowy 2.0 project is the next chapter of nation building infrastructure and will generate low carbon energy and employment for approximately 4,000 people in the region throughout the life of the project (Snowy Hydro, n.d.).

The area is popular for snow sports during the winter, and mountain biking, hiking and camping during the non-winter months. Mount Kosciuszko is located in the Snowy-Monaro, which attracts large amounts of tourists interested in snow sports each year. The Snowy Hydro Scheme provides cultural heritage which supports local tourism. Additionally, a range of events are run throughout the calendar year, including the National Busking Championships (Busking, 2022).

Figure 13 shows displays details from the 2021 census that identifies the accommodation and food services industry as the highest proportion of jobs in the region, at 13.3%. Construction (9.9%) and retail trade (8.8%) are the second and third largest industries in the region (ABS, 2021a) Additionally, SMRC has identified four core economic drivers: tourism, agriculture, timber and water, which are further supported by emerging environment and education sectors (SMRC, 2024a).

The Snowy-Monaro LGA's population represents 0.2% of the total population of NSW. The median household income per week for the Snowy-Monaro LGA is $1,593, which is 13% less than the NSW median household income per week of $1,829. Additionally, the unemployment rate (as of December 2023) is 2.8% in Snowy-Monaro, which is well below the NSW rate of 4.9%. Labour force participation is 4.8% greater than NSW, at 62.8% compared to NSW's 58.7%.

Key industry takeaways:

- Tourism is the largest industry in the Snowy Monaro Region, adding $418 million to the local economy in 2021 (NSW Government, 2023b).
- Snowy Mountains Special Activation Precinct aims to uplift yearlong tourism opportunities with development of this precinct being carried out over a 40-year period (NSW Government, 2022).
- Accommodation and food services is the largest employer of the region while there is a potential growth spurt in the construction industry (economy.id, 2024).
- The two key production industries for this region are the renewable energy generation industry and the forestry industry, with the forestry industry more sensitive to climatic conditions, making it more vulnerable to the impacts of drought (NSW Government, 2023b).

SNOWY MONARO REGIONAL LGA

Population characteristics

Snowy Monaro population 2021
21,666

Aboriginal and Torres Strait Islander population
665

Population by 2041
23,845

Estimated annual population growth rate of 0.5%

Age distribution

Median age	
Snowy Monaro	43 years
NSW	39 years

Born overseas	
Snowy Monaro	13.6%
NSW	29.3%

Speaks a language other than English	
Snowy Monaro	6.2%
NSW	26.6%

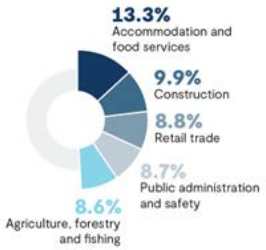
With the top 3 most spoken language other than English in Snowy Monaro including:

- German – 0.7%
- Mandarin – 0.7%
- Spanish – 0.5%

Require assistance with core activities	
Snowy Monaro	2.4%
NSW	2.7%

Work and economy

Top industries of employment



Top occupations

Unemployment	
Snowy Monaro	2.8%
NSW	4.9%

Labour force participation	
Snowy Monaro	62.9%
NSW	58.7%

Journey to work by car	
Snowy Monaro	64.9%
NSW	46.6%

Median individual income	
Snowy Monaro	$835
NSW	$813

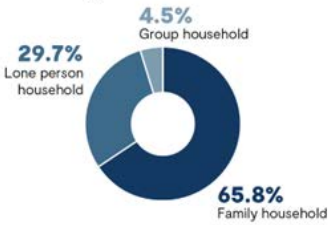
Median household income	
Snowy Monaro	$1,593
NSW	$1,829

SNOWY MONARO REGIONAL LGA

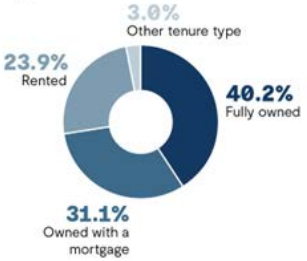
Family and dwelling characteristics

- **113** suburbs
- Average household size **2.4** people
- **87.0%** of residential dwelling are separate houses
- **2.3%** of households had no motor vehicle
- **76.0%** of residential dwellings are occupied
- **76.5%** of people have lived at the same address as one year ago
- **26.0%** of people experience rental stress
- **1.7%** rent social housing

Household type



Tenure type



Education and qualifications

Have completed Year 12 or equivalent	
Snowy Monaro	50.6%
NSW	58.9%

Have completed a Bachelor's degree	
Snowy Monaro	24.9%
NSW	32.9%

Have completed a Certificate level (total)	
Snowy Monaro	46.7%
NSW	32.3%

Community and wellbeing

56.6%

reported having no long-term health conditions in the 2021 Census. Of those who reported long-term health conditions, the most common where:

- Arthritis
- Mental health condition
- Asthma

Score of 8 within NSW and Australia

in terms of their relative socio-economic advantage and disadvantage (IRSAD). This indicates a high level of advantage in Snowy Monaro when compared to the rest of NSW and Australia.

Participated in volunteering	
Snowy Monaro	20.7%
NSW	13.0%

Figure 13 Socio-economic summary of the Snowy-Monaro LGA (ABS, 2023), (ABS, 2022)

2.1.3. Yass Valley LGA

The Yass Valley Council (YVC) covers 399,202 hectares and has a population of 17,281 people (refer Figure 14); the smallest (in terms of size and population) of the three LGAs (ABS, 2021a). The Yass Valley consists of eight towns: Binalong, Bookham, Bowning, Gundaroo, Murrumbateman, Sutton, Wee Jasper, and Yass. The surrounding cool climate wine region of Murrumbateman, Gundaroo and Wallaroo offers significant attraction to visitors with over 60 wineries offering award-winning vintages. This, with the rural lifestyle, proximity to Canberra and housing opportunities makes the Yass Valley a desirable place to live (YVC, 2024).

The Yass Valley was "born off of the sheep's back" as early European settlers to the region established an economic base through the fine wool trade. In modern times, the Yass Valley continues to diversify its economic pillars, and enjoys unique opportunities for work, education, and entertainment due to sharing a border with the ACT (YVC, 2024). The public administration and safety industry employs the highest percentage of people in the region (19.5%), which is followed by construction (12.2%) and health care and social assistance (9.9%) (ABS, 2021a). Transgrid and Yass Valley Council are the two largest employers in the region, and local organisations such as the Yass Valley Business Chamber and Canberra Region Joint Organisation aim to promote economic growth in the region (YVC, 2024).

The YVC continues to innovate agricultural practices to be more climate resilient. The Yass Area Network Ready Revegetation Project (YAN) aims to improve genetic diversity of the region's natural resources. By using a 2.5- degree temperature increase projection, the region has been able to identify appropriate, native vegetation that will thrive under the conditions and provide ecosystem services that underpin the region's environment (YANoLG, 2021).

The Yass Valley LGA's population represents 0.2% of the total population of NSW. The median household income per week for the Yass Valley LGA is $2,289, which is 25% greater than the NSW median household income per week of $1,829. Additionally, the unemployment rate (as of December 2023) is 2.7% in Yass Valley, which is well below the NSW rate of 4.9%. Labour force participation is 8.1% greater than NSW, at 66.8% compared to NSW's 58.7%.

Key industry takeaways:

- The foundation of the economy is tourism and agriculture, with the tourist appeal stemming from the food, wine, nature, outdoors and heritage industries (ABS, 2021a)
- Public administration, safety, construction, and education saw increases in employment in the 2021 census (ABS, 2021a)
- The region aims to seek leverage in its advantageous position by removing barriers between the ACT and Yass Valley by removing local transport infrastructure barriers to support the movement of labour and tourists through the region.
- Upgrade in digital infrastructure and COVID-19 pandemic has improved capacity for residents to access telehealth services, though the region is still facing challenges in delivering healthcare services (NSW Government, 2023b).

YASS VALLEY LGA

Population characteristics

Yass population 2021
17,281

Aboriginal and Torres Strait Islander population
552

Population by 2041
20,684

Estimated annual population growth rate of 0.9%

Age distribution

Median age

Yass	38 years
NSW	39 years

Born overseas

Yass	10.9%
NSW	29.3%

Speaks a language other than English

Yass	4.1%
NSW	26.6%

With the top 3 most spoken language other than English in Yass including:

- German – 0.3%
- Mandarin – 0.2%
- Arabic – 0.2%

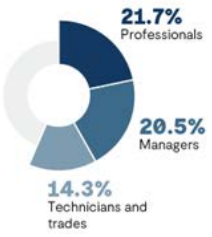
Require assistance with core activities

Yass	2.6%
NSW	2.7%

Work and economy

Top industries of employment

Top occupations



Unemployment

Yass	2.7%
NSW	4.9%

Labour force participation

Yass	66.8%
NSW	58.7%

Journey to work by car

Yass	66.4%
NSW	46.6%

Median individual income

Yass	$1,050
NSW	$813

Median household income

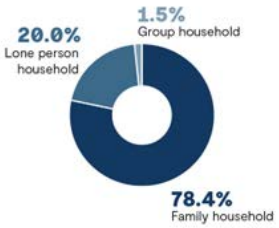
Yass	$2,289
NSW	$1,829

YASS VALLEY LGA

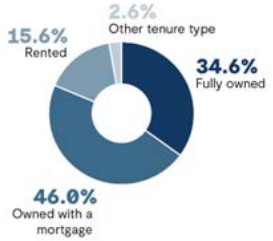
Family and dwelling characteristics

- **32** suburbs
- Average household size **2.7** people
- **94.3%** of residential dwelling are separate houses
- **2.3%** of households had no motor vehicle
- **91.8%** of residential dwellings are occupied
- **84.1%** of people have lived at the same address as one year ago
- **22.3%** of people experience rental stress
- **4.0%** rent social housing

Household type



Tenure type



Education and qualifications

Have completed Year 12 or equivalent

Yass	60.7%
NSW	58.9%

Have completed a Bachelor's degree

Yass	28.4%
NSW	32.9%

Have completed a Certificate level (total)

Yass	36.0%
NSW	32.3%

Community and wellbeing

56.1%

reported having no long-term health conditions in the 2021 Census. Of those who reported long-term health conditions, the most common where:

- Arthritis
- Mental health condition
- Asthma

Score of 9 within NSW and 10 within Australia

in terms of their relative socio-economic advantage and disadvantage (IRSAD). This indicates a high level of advantage in Yass when compared to the rest of NSW and Australia.

Participated in volunteering

Yass	22.2%
NSW	13.0%

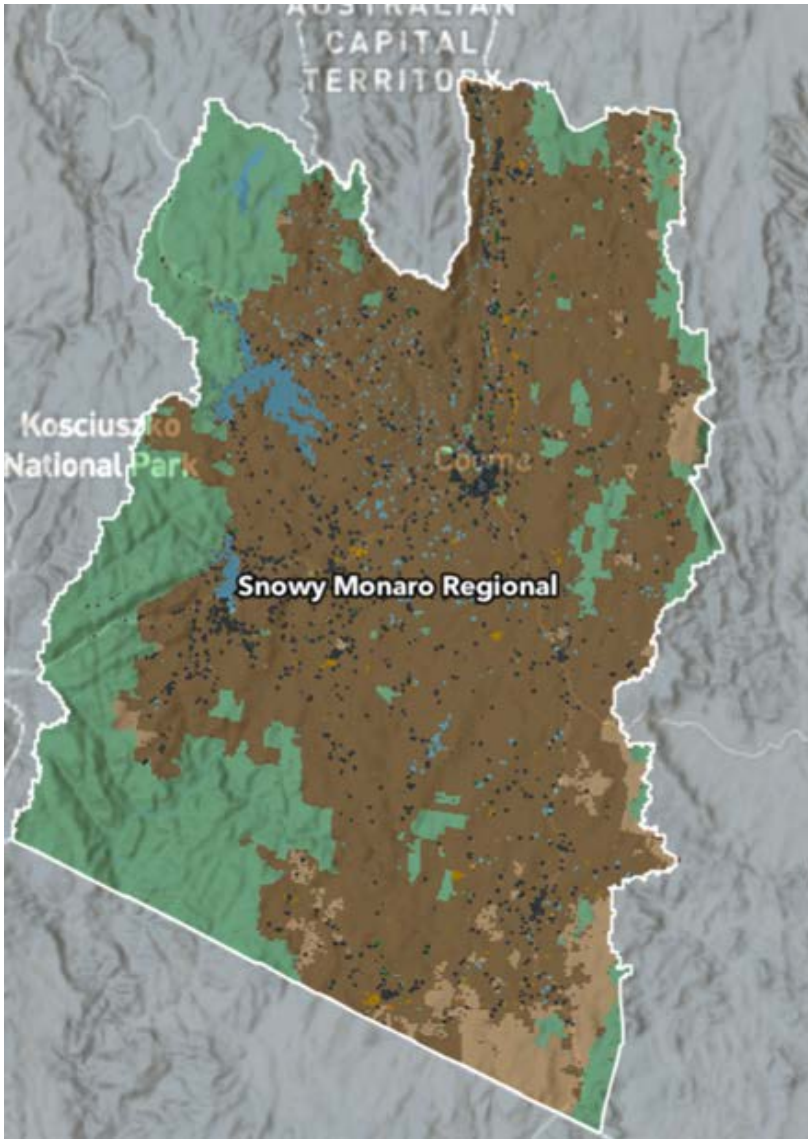
Figure 14 Socio-economic summary of the Yass Valley LGA (ABS, 2023), (ABS, 2022)

2.2. Land use

Land use is largely determined by climate and geography. The mountainous SMRC experiences a cooler climate with uniform rainfall throughout the year and winter snowfall (BoM, 2022). QPRC and YVC are slightly warmer, with occasional frosts and light snowfall in elevated areas during winter (BoM, 2022) Section 3.5.1 expands on the regional weather and climate across the three LGAs. The diversity of climate and geography in the region leads to diverse land use.

Figures 15 to 17 show the main land uses within each of the three LGA's of Queanbeyan Palerang, Snowy Monaro and Yass Valley.

As the largest LGA by land area in this plan the land use information above shows majority of land in the Snowy Monaro is used for livestock production with the southern side of the LGA taking in a portion of the Kosciuszko National Park and being primarily nature conservation area with most of the forests and plantations being located in the south of the LGA. Agricultural land use makes up approximately 64% of land use in the LGA with 35.14% being non-agriculture and including land used for water supplies as well as urban and other infrastructure (NSW Government, 2021).



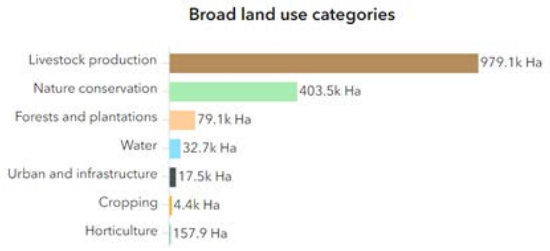


Figure 15 Snowy Monaro LGA types of land use (NSW Government, 2021)

The land use information above shows majority of land in the Queanbeyan-Palerang LGA is used for livestock production with pockets of nature conservation area across the LGA. Agricultural land use makes up approximately 61.6% of the LGA area and 38.4% for non-agriculture land use which includes a higher portion of urban and infrastructure which is expected given the proximity of the LGA to the Canberra region (NSW Government, 2021).

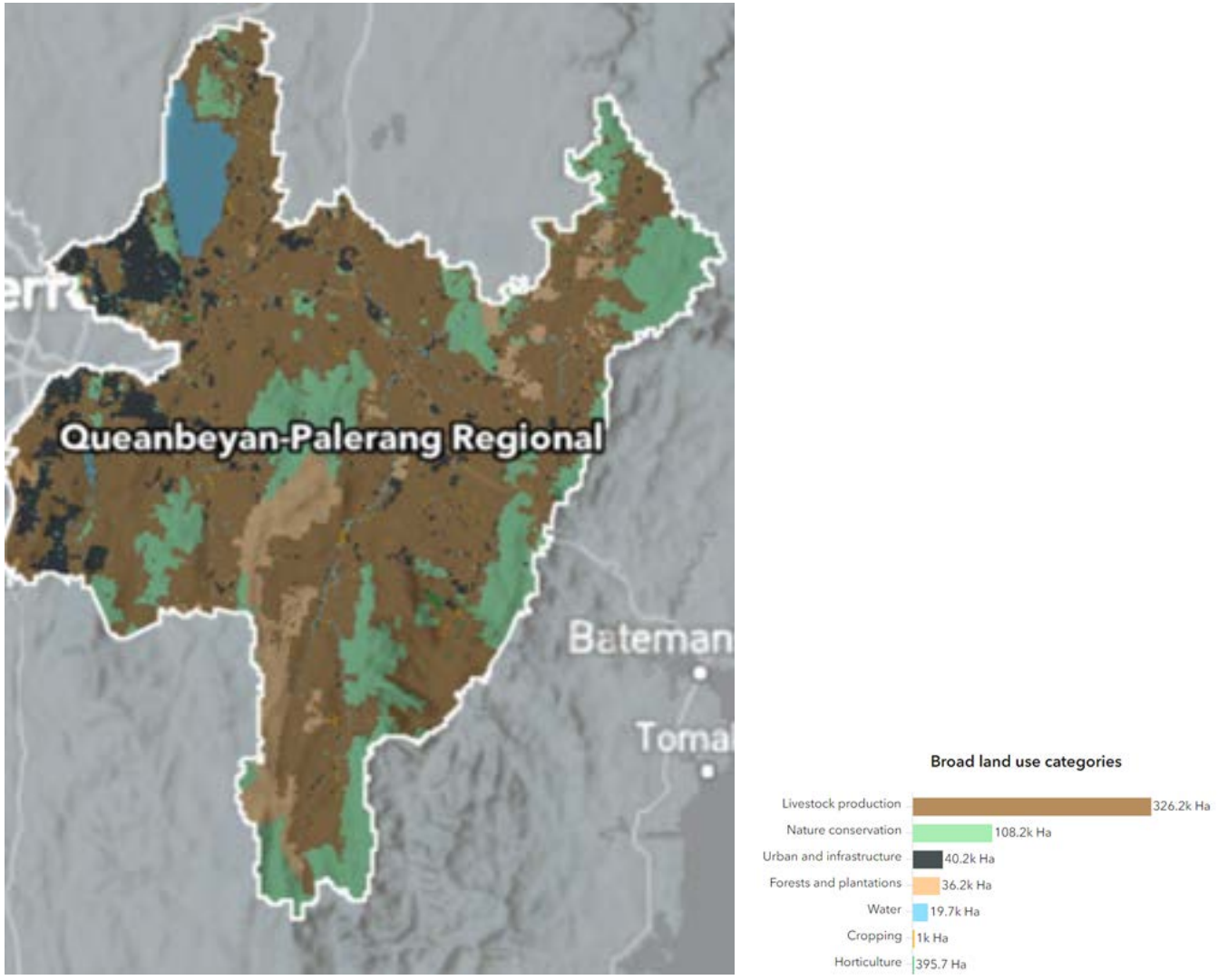


Figure 16 Queanbeyan Palerang LGA types of land use

The land use information above shows majority of land in the Yass Valley is used for livestock production with pockets on the southern and western sides being nature conservation areas of the LGA. Yass has the largest cropping area of the three LGA's at 15,000 hectares, most of which is based in the northern part of the LGA.

The LGA of Yass utilises 81% of its land for agricultural related purposes and 19% for non-agricultural purposes which includes land uses such as rivers, lakes and residential infrastructure.

The region contains protected lands that are used for recreation, cultural heritage, tourism, and ecological conservation. In 2022, QPRC had a total of 62 protected land areas, (10 national parks, 14 nature reserves, and 38 protected land areas) covering a total of 87,263 ha. SMRC has a total of 97 protected land areas, including six national parks and 29 nature reserves, with a total protected area of 417,735 ha. Yass Valley has 1 national park, nine nature reserves, and six other protected land areas, covering a total of 28,418 hectares (ABS, 2021a) Popular National Parks within the region include the Deua, Kosciuszko, Morton, Monga, South East and Wadbilliga National Parks (SMRC, 2024a).

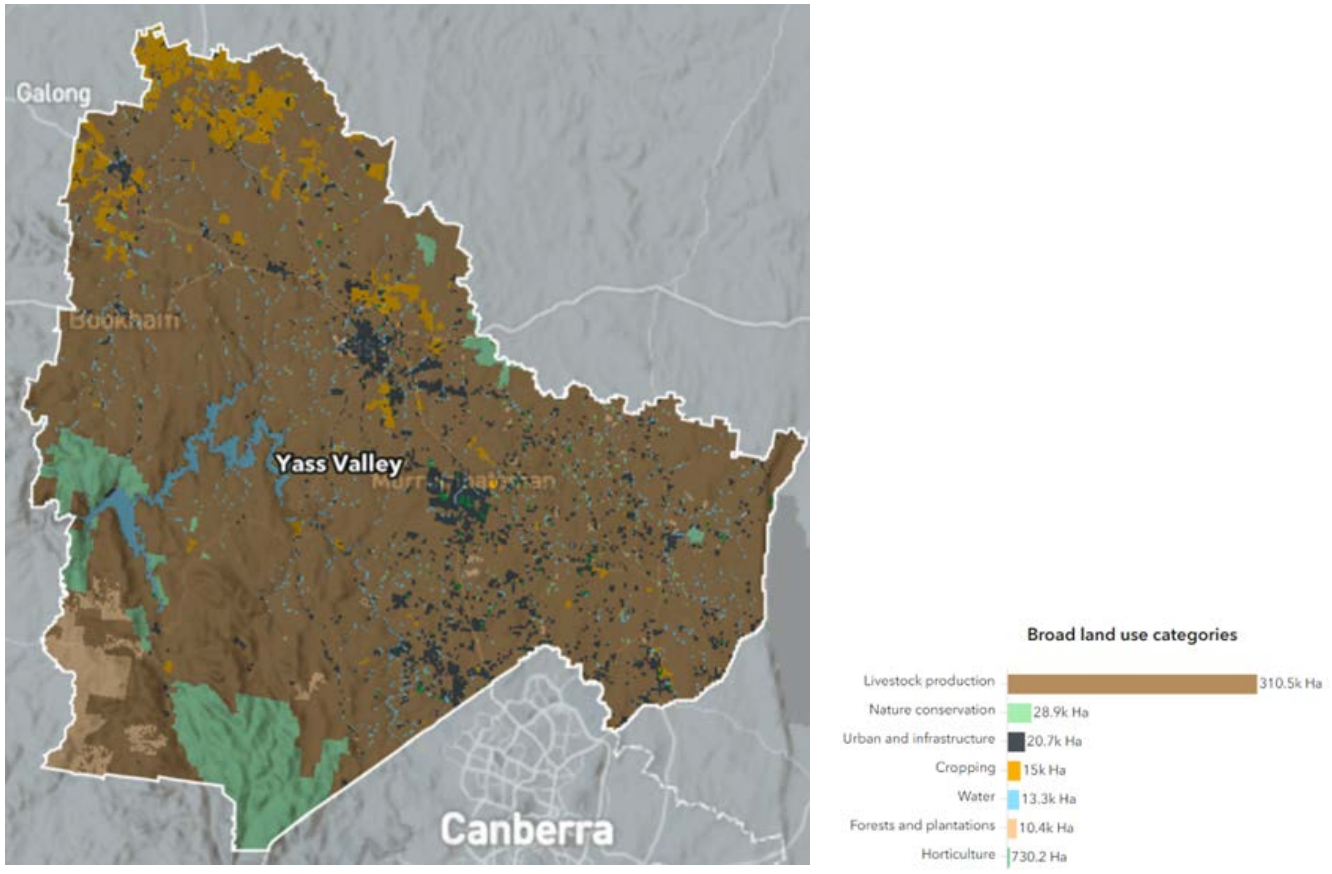


Figure 17 Yass Valley LGA types of land use

2.3. First Nations Peoples

The regions around Queanbeyan-Palerang, Monaro, and the Yass Valley weren't solely the territory of single Aboriginal groups. Traditional Custodians across the area now known as Queanbeyan-Palerang include the Ngunnawal, Ngambri, Ngarigo and Yuin. The Ngarigo people have a deep connection to the Monaro region and surrounding areas (SMRC, 2024b). Further, in the Yass Valley region, the Ngunnawal and Wiradjuri people inhabit the Yass Valley locality. This highlights the interconnectedness of Aboriginal cultures across vast distances.

One factor that brought many groups together was the seasonal abundance of the Bogong Moth (Rivers of Carbon, 2023). Across the Queanbeyan-Palerang and Snowy Monaro regions, this area was a seasonal gathering place for many groups. Groups like the Brinja, Wallendgar, and Walbunja, who originated from the far south coast, would travel through the region on their way to the high-country during Bogong moth season (SMRC, 2024b) This seasonal movement demonstrates the interconnectedness of Aboriginal cultures across vast distances.

Along with the Ngarigo people, several other Aboriginal groups have ancestral links to different parts of Monaro (SMRC, 2024b) The Walgalu people inhabited the northwestern regions, while the Ngunnawal people had ties to the northeast (SMRC, 2024b). In the south, the Bidhawal people held their own cultural significance within the area (SMRC, 2024b).

Early European settlers mistakenly believed that Aboriginal people only used the Monaro high country during warmer months (SMRC, 2024b)However, we now understand that some groups, likely the Ngarigo, resided there year-round (SMRC, 2024b) This highlights their deep adaptation to the region's unique environment.

Similarly, the Yass Valley served as a significant meeting place for numerous Aboriginal ‘groups’: the Mulwaree, Wollondilly, Wiradjuri, Gundungurra, Dharrook, Tharawal, Tarlo, Pajong, Parramarragoo, Cookmal, Burra Burra, Lachlan, and Ngunnawal people all have connections to this region (Rivers of Carbon, 2023) The valley's geography, offering plentiful resources and acting as a natural crossroads, likely explains this rich tapestry of cultures.

One particularly significant site within the Yass Valley is the Aboriginal "Riverside Camp" located near the Yass Weir. Used by local Indigenous people in the early 1900s, it functioned as a camp closer to town (Rivers of Carbon, 2023) Evidence of their presence remains in the form of rock arrangements and remnants of what might have been fruit trees planted by them (Rivers of Carbon, 2023) Protecting these sites is crucial. They not only honour the past but also act as repositories of cultural knowledge that needs to be safeguarded for future generations.

Thankfully, there are ongoing efforts to preserve this heritage. The Rivers of Carbon Yass River Linkages Project, for instance, has undertaken habitat restoration work at the Riverside Camp site. This commitment to restoring the land where these communities once thrived demonstrates respect for their connection to the environment and their enduring legacy.

2.4. Agriculture

The region has a long history of agriculture, with the region’s gross agricultural production valued at $270 million for 2020-21 (ABS, 2022) The ‘sheep farming (specialised)’ industry accounts for 2.7% of employment within the Snowy-Monaro region, and 2.6% of employment within the Yass Valley region (ABS, 2021a).

The three LGA’s lie within the Murry Darling Basin. The topography is diverse and characterised by farmland, national parks, mountain ranges, and numerous Murrumbidgee River tributaries. The rain profiles vary per region, where Queanbeyan-Palerang experiences a steady amount of rainfall throughout the year, the Yass Valley and Snowy-Monaro regions are characterised by winter-dominated rainfall and late winter to early spring rainfall respectively.

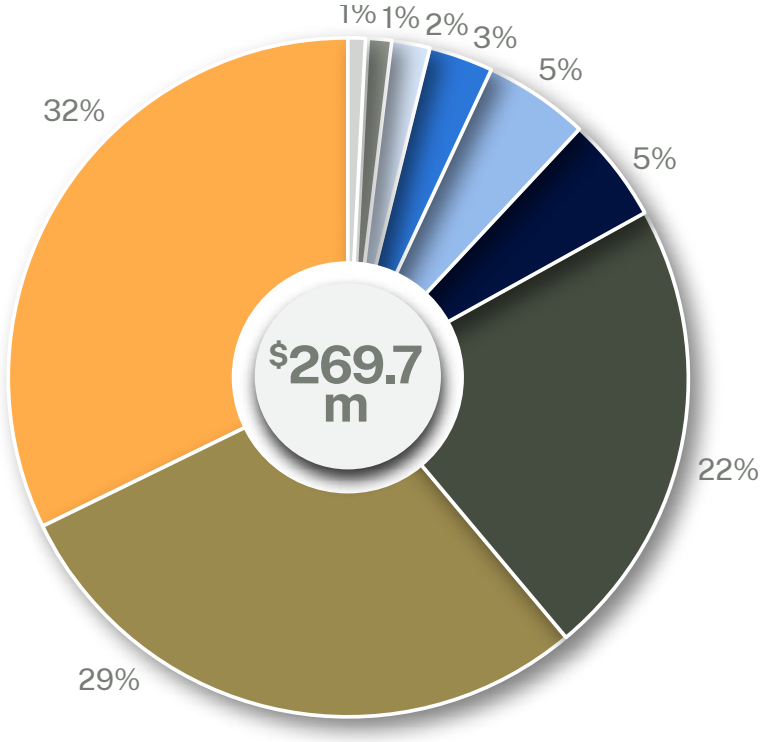
Figure 18 shows the region’s agriculture is dominated by sheep farming, with sheep and lamb slaughter accounting for 32% of the region’s gross value of agricultural commodities, and wool accounting for 22% (ABS, 2022). Cattle and calf slaughter also constitutes a significant portion (29%) of gross agricultural production value within the region. The majority of the region’s agricultural land is used for livestock grazing (811,757 ha), 468,324 hectares of that includes improved grazing. As of 2020-21, Snowy-Monaro had a total of 926,078 sheep and lambs and 61,199 cattle (around 488 of those were used for dairy); Queanbeyan-Palerang region had 128,210 sheep and lambs and 25,048 cattle; and Yass Valley had 666,655 sheep and lambs and 25,742 cattle (ABS, 2022).

The diversity of production includes hay, wheat, canola, and other broadacre crops such as barley and oats, as well as fruit, nuts, wine, and nursery production (ABS, 2022). Hay production accounted for 5% of the value of agricultural commodities produced within the region ($13.3 million). Cereal crops including wheat and canola are the dominant crops produced in the region, accounting for a gross value $3.9 million and $4 million respectively (ABS, 2022).

Agricultural production in the region is largely unirrigated. QPRC has 141,694 hectares of agricultural land almost exclusively unirrigated - with only 127 hectares of irrigated agricultural land using 194 ML (ABS, 2021b). Only 381 hectares of agricultural land in YVC utilises irrigation, with a volume of 977 ML applied. SMRC had the highest use of irrigation on agricultural land, with 912 hectares using 3,371 ML of irrigated water (ABS, 2021b).

Agricultural commodity prices and profit can affect drought sensitivity. In years of high crop prices, drought risk tends to increase as farmers plant more crops and apply more inputs in order to maximise potential profits. This can however expose farms to higher drought risk.

Previous research has shown that larger agricultural farms tend to be less sensitive to drought than smaller farmers, and farms with managers less than 50 years of age are also generally less sensitive to drought (ABARES, 2022b).



	Wheat	3.9m
	Canola	4m
	Other crops	4.2m
	Other	7.9m
	Hay	13.3m
	Vegetables	12.4m
	Livestock products (wool)	58.6m
	Cattle and Calves slaughtered	78.3m
	Sheep and lambs slaughtered	87.1m
	Total	**269.7m**

Figure 18 Gross value of agricultural commodities produced within the LGAs of Snowy-Monaro, Queanbeyan-Palerang, and Yass Valley, 2020-21 (ABS, 2022a)

Farm drought risk varies significantly across agricultural commodities, with cropping farms more sensitive to drought than livestock farms (ABARES, 2020). This is because crop yields are directly linked to weather conditions, whereas livestock producers can smooth impacts over multiple years through increased turn-off (sales) of livestock in drought years (ABARES, 2020) As a result, the percentage of land devoted to crops is a key driver of drought sensitivity and risk. Cropping constitutes small areas of land across the three LGAs. This smaller allocation of land to cropping overall reduces the drought sensitivity and risk for the region (ABARES, 2020)

2.5. The Region's water

Water resources within the Queanbeyan Palerang, Snowy Monaro, and Yass Valley region are supplied from a range of sources including regulated and unregulated rivers (including the Murrumbidgee River, the Murray River and the Goodradigbee River), unregulated surface water, groundwater, and private systems (Figure 19). Water flow is managed through the Snowy Hydro Scheme, regional pipelines, and water storage infrastructure (Snowy Hydro, 2024). The larger water storage infrastructure in the region includes Eucumbene Dam (capacity 4,798 GL) Burrinjuck Dam (1,026 GL), Talbingo (920.6 GL) Jindabyne (689.9 GL), Tantangara (254 GL), and Googong Dam (125 GL) (Snowy Hydro, 2024). The main water suppliers in the region are Snowy Hydro, Icon Water and each of the three Local Councils who supply water to their communities. These sources and management practices serve the needs of the community, industry, environment, and agriculture.

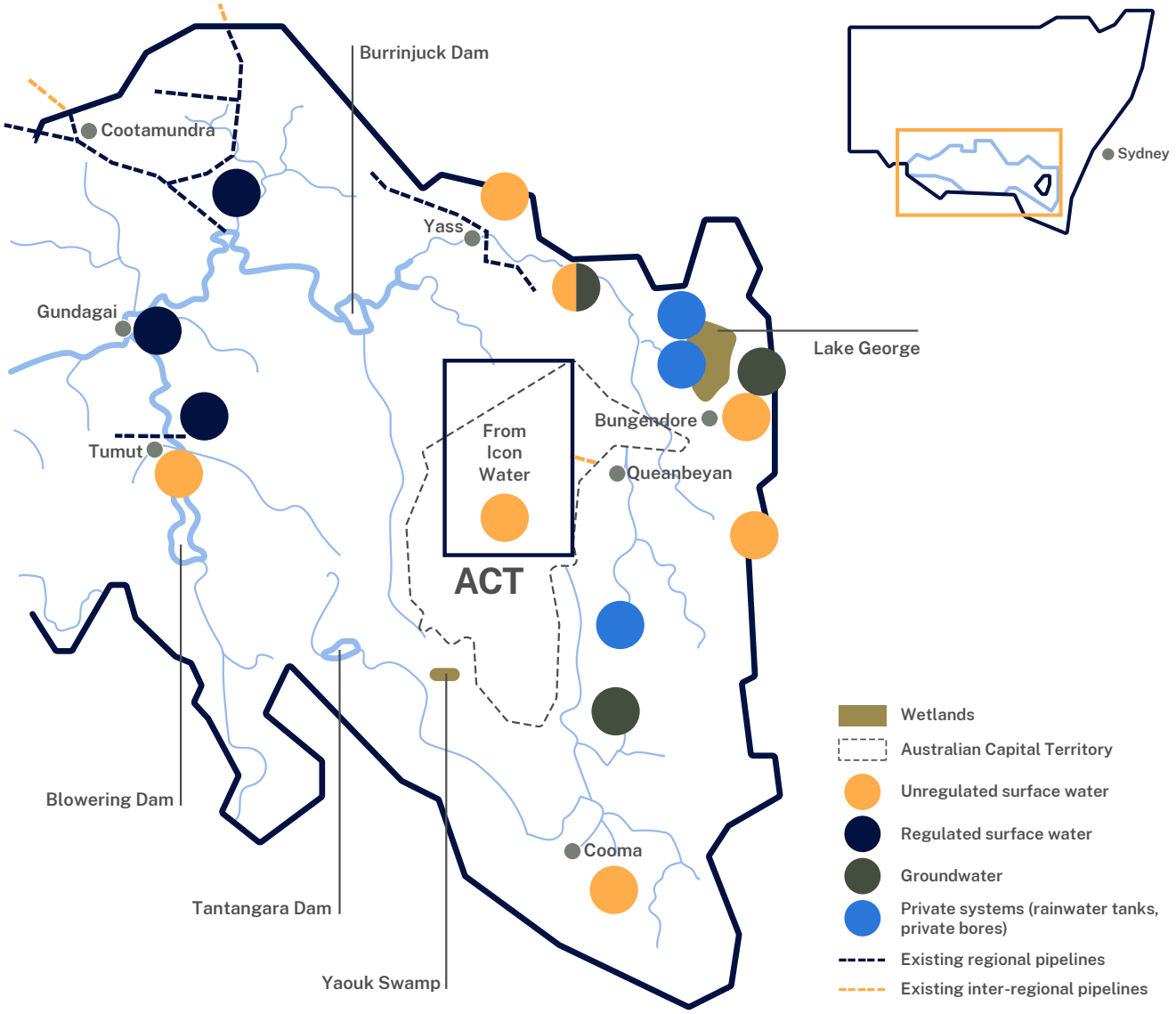


Figure 19 Map of water infrastructure pipelines (DCCEEW, 2024)

2.5.1. Rivers

The three LGAs lie within to large parts the Upper Murrumbidgee Catchment and the Upper Murray Catchment (MDBA, 2023a) The Murrumbidgee River begins in the high Australian Alps, where snowmelt in the mountains feeds the water supply (MDBA, 2023b). The river winds its way through Kosciuszko National Park, Monaro High Plains, and passes through Cooma, Queanbeyan, Canberra, and Yass, before heading west to Hay (MDBA, 2023b).

Unregulated rivers and creeks are vital for some towns' water supplies, industries, and the environment. Cooma relies entirely on unregulated water supply. The main unregulated rivers and creeks include the upper Murrumbidgee, Yass, Bredbo, and Molonglo Rivers, further the Numeralla River (DCCEEW, 2022b).

The Murray River begins when three springs in alpine grassland – 40 kilometres south of Mount Kosciuszko – forms a small stream and other small mountain creeks and rivers join (MDBA, 2023c). Salinity continues to be an issue across the NSW Murray-Darling Basin (NSW Government, 2024d) Salt occurs naturally in the environment, however changes in water and land use and climate change can cause increased levels of salt, impacting ecosystems, water safety, and agricultural production (NSW Government, 2024d). The Murray Darling Basin authority and Basin states are collaborating to reduce salinity through the Water Group's Basin Salinity Management Program. The program outlines salinity management and monitoring activities (NSW Government, 2024d).

2.5.2. Ground Water

Groundwater is also an important water source in the region. During droughts, reliance on groundwater can increase significantly to support regional industries and some town water needs (DPIE, 2022) Some parts of the region have been affected by concentrated groundwater extraction, with declining groundwater levels and increasing salinity posing a risk to future groundwater access (DPIE, 2022).

In the Murrumbidgee catchment, groundwater sources are extensively used and are an important water source for towns, industries, and the environment. These groundwater sources include:

- Bungendore Alluvial Groundwater Source (also sometimes referred to as Lake George Alluvium). This supplies the town of Bungendore, stock and domestic uses, and irrigation (DCCEEW, 2022).
- Yass Catchment Groundwater Source. This supplies town water in the Yass Valley and for stock and domestic uses (DCCEEW, 2022).

Surface water and groundwater systems within the Murray Catchment range from highly connected — particularly in the mountainous regions of Snowy-Monaro — to disconnected (MDBA, 2023c). Upland streams — those that typically originate in mountainous areas — receive flow from fractured granite and sedimentary rock aquifers (MDBA, 2023c).

Queanbeyan-Palerang

In Queanbeyan, the water is supplied by Icon Water and is sourced from a number of surrounding dams in NSW and the ACT (Queanbeyan-Palerang Regional Council, n.d.). Other towns within the LGA, namely Braidwood, Bungendore, and Captains Flat, source their water from a several bores, rivers, and dam water. These towns/villages have their own water treatment facilities to provide residents with potable water.

For example, Braidwood's town water is serviced by the Braidwood Water Supply Scheme (Queanbeyan-Palerang Regional Council, 2021). The Braidwood Water Treatment Plant (WTP) sources its water from a 72 ML off-stream storage dam (that is filled from the Shoalhaven River). The WTP has a capacity to treat 2 ML/day and is stored in three reservoirs with a combined capacity of 2.6 ML (Queanbeyan-Palerang Regional Council, 2021). In 2019, the estimated secure yield for the Braidwood off-river storage was 394 ML/year and water restrictions increased up to Stage 4 (the highest level (Queanbeyan-Palerang Regional Council, 2021). Modelling under a 1-degree Celsius climate warming scenario, unrestricted future extraction will exceed the secure yield levels in 2042/43. Therefore, the local council has proposed a restriction scheme with trigger levels for restrictions (Queanbeyan-Palerang Regional Council, 2021).

Snowy-Monaro

A number of water sources including Lake Jindabyne, Lake Eucumbene, Coolumbooka River, Murrumbidgee River, and a number of bores across the Snowy-Monaro LGA are used to provide the various townships with potable water. There are three (3) water treatment plants that reticulate water through 330 kilometres of piping infrastructure reaching 9442 homes throughout the region (Snowy Monaro Regional Council, 2022). The region has several upgrade works planned, including the construction of two (2) new water treatment plants at Bombala and Delegate (Snowy Monaro Regional Council, 2022).

Yass Valley

Yass Dam has a current capacity of 2460ML and services 15,000 people in the region. The town of Yass and the villages of Bowning, Binalong, Murrumbateman are connected to the Yass Dam water supply. Though the Dam was raised in 2013 to increase capacity, it is anticipated that the additional supply will soon fall short of demand and will do so at a faster rate due to the potential impacts of climate change (GHD, 2022). Yass Water Treatment Plant (WTP) underwent upgrade works in 2019 and has the capacity to process up to 13ML of water per day (Yass Valley Council, n.d.). Burrinjuck Dam — on the Murrumbidgee River — is located in Yass and has a storage capacity of 1,026 GL.

2.5.3. Regional Water Strategies

The Regional Water Strategies (the Strategies) are designed to create a plan and roadmap of actions to manage the regions water needs for the next 20-40 years with the aim of improving water security and better preparing regions for droughts. The three LGAs within this plan are covered largely by two regional water strategies: the (draft) Murray Regional Water Strategy (DCCEEW, 2024a) and the (draft) Murrumbidgee Regional Water Strategy (DCCEEW, 2024b).

Future climate projections suggest that, if the worst-case dry future climate scenario eventuates, by 2079, total volume of water flow in rivers could decrease (DCCEEW, 2024b). For example, the Mittagong Crossing (near Cooma) modelled a decrease of flow from 50ML/day to 30ML/day. These changes in water flow (coupled with changes in rainfall and evapotranspiration) could increase water-related risks to the environment and water users and may affect agricultural output.

The Strategies model future town's water supply and demand. For Queanbeyan and Yass, under all climate scenarios, there were no shortfalls of town water supply (DCCEEW, 2024b). For Cooma — under the dry future climate scenario — it was modelled to experience a 49-day shortfall of 10% of the required daily demand with a low probability (0.1%) chances of occurring in any given year. However, the Strategies also highlighted that projected population growth posed a key challenge for maintaining water security within the region. In addition to population growth, the Strategies identify four key challenges:

- Balancing competing interests for water
- Improving the health and resilience of ecosystems
- Addressing barriers to Aboriginal peoples' water rights
- Supporting existing and emerging industries and livelihoods

To address these challenges, several actions have been proposed, including:

- Improve strategic water management and decision-making frameworks by incorporating new climate and modelled data.
  - The water sharing plans in the Murrumbdigee region are due for renewal, providing an opportunity to review the drought rules and incorporate new climate data (DCCEEW, 2024b).
  - Consider an enduring level of supply to support regional towns and centers.
    - » The enduring supply concept involves determining the amount of water needed to meet the minimum needs of the community during periods of prolonged and extreme drought, irrespective of how long the drought lasts.
  - Improve public access to climate information and water availability forecasts.
    - » These aids informed discussions and decisions for drought management.
  - Addressing sustainable population growth pressures in the upper Murrumbidgee catchment (DCCEEW, 2024b).
    - » Intergovernmental dialogue is currently occurring to understand the feasibility of the supply of water from the ACT (cross-border water supplies) to improve water security. The ACT Government, NSW Government, QPRC, and YVC agreed to establish the ACT-NSW Urban Water Issues Steering Committee to support these strategic discussions around water supply and security.

2.6. The region's infrastructure

Infrastructure including road, rail, air, and telecommunications can influence a community's ability to thrive. Infrastructure contributes to the liveability, accessibility to services, and industry attraction.

2.6.1. Road, rail, and air

Across the three LGAs, road infrastructure is of particular importance as the transport and accessibility of freight and passengers relies heavily on the road network. Table 2 provides a summary of the major roads network across the three LGAs. Table 3 displays the major investment in road upgrades across the three LGAs, highlighting the regions' reliance on road infrastructure. While these upgrades are critical, the Queanbeyan-Palerang Regional Economic Development Strategy also recommends that the QPRC should focus on collaboration with the ACT Government to investigate a coordinated approach to cross-border infrastructure and road connectivity to strengthen the region's accessibility to services (NSW Government, 2023a).

Road Name	LGA	Description
Monaro Highway	SMRC	Key road into and out of the region. Begins in the ACT and passes through Cooma, Nimmitabel, and Bombala. It crosses into Victoria where it connects to the Princes Highway – a key road freight route.
Snowy Mountains Highway	SMRC	Key road artery that begins in Bega and travels west. It joins the Monaro Highway between Nimmitabel and Cooma, before continuing west towards Tumut.
Kosciusko Road	SMRC	Spans between Cooma and Charlottes Pass. It provides access to the recreational snowfields.
Barry Way and Alpine Way	SMRC	Links Jindabyne to the South with Victoria.
Captains Flat Road and Cooma Road	QPRC	Joins Braidwood to Queanbeyan.
Federal Highway	QPRC	The Federal Highway runs from the ACT and connects to Sydney, passing through the QPRC area and adjacent to YVC area. The town of Queanbeyan is connected to the Federal Highway via the Sutton Road. This is a main freight route.
Kings Highway	QPRC	Connects Queanbeyan, Bungendore, Braidwood, and Batemans Bay.
Barton Highway	YVC	Connects Yass and the ACT. This is a main freight route.
Wee Jasper Road	YVC	Connects Yass to Tumut via Wee Jasper.
Hume Highway	YVC	Connects Yass to Gundagai.

Table 2 Summary of major road infrastructure in QPRC, SMRC, and YVC (NSW Government, 2023a; NSW Government, 2023c)

Project	Estimated project value (m)
Monaro Highway upgrade	**$230**
Parsonage Creek bridge upgrade	**$1.8**
Bobeyan Road Upgrade Project	**$20**
Ellerton Drive extension	**$86**
Nerriga Road upgrade	**$34**
Timber Bridge upgrades	**N/A**
Barton Highway Stage 1 and 2 upgrades (Transport NSW, 2024)	**$200**

Table 3 Summary of major road infrastructure investment (NSW Government, 2023b; NSW Government, 2023a)

Rail infrastructure varies between the three LGAs. The YVC's current railway infrastructure includes the Main Southern Railway from Sydney that passes through Yass (Yass Junction Railway Station). The Main Southern Railway connects to Melbourne via the North East railway line and this serves as the key rail freight route between Sydney and Melbourne. Thus, industry in YVC benefit from rail infrastructure that allows access to major markets including Sydney and Melbourne.

QPRC benefits from the Goulburn Bombala Railway. The northern part of the line forms the main railway network between Sydney and Canberra, with stations in Tarago, Bungendore, and Queanbeyan. The NSW TrainLink Xplorer provides three passenger trains daily in both directions. Many of the towns in SMRC were previously part of the southern section of the Goulburn Bombala Railway line, with stations at Michelago, Bredbo, Chakola, Bunyan, Cooma, Nimmitabel, and Bombala. The line south of Cooma was closed in 1986, and the rest of the line south of Queanbeyan was terminated by 1989. Today, these stations are no longer in use. Recently, the Cooma and Monaro Progress Association have advocated for fixing the railway line between Canberra and Bombala and extending it to Eden. A Government-funded feasibility study in 2020 found the cost benefits of the line were negligible, however advocation still continues (McDonald & Bevan , 2023). Today, parts of the railway line are used as historical tourist attractions (Cooma Monaro Railway, 2024), and in 2022, the NSW Government provided $273,000 to complete the Development Plan for a rail trail between Queanbeyan and Cooma. (Business Queanbeyan Palerang, 2024).

Additionally, the SMRC has the Bullocks Flat Skitube that carries passengers on a short 8.5 kilometre journey from Bullocks Flat into Kosciusko National Park to the popular ski fields of Perisher Valley and Blue Cow Mountain. 6.3 kilometres of the line is underground, making it one of the longest underground train tunnels in Australia. (Department of Customer Service, 2024).

The region is less accessible via air. In the neighbouring ACT, the Canberra Airport offers both domestic and international flights for passengers and caters to the movement of domestic freight (Canberra Airport, 2024).

2.6.2. Telecommunications

Digital connectivity and mobile coverage within the three LGAs rely on telecommunications infrastructure. Geographic features such as hills or mountains can also affect coverage (Telstra, 2024) In recognition of the importance of digital connectivity, the Federal Government's Mobile Black Spot Program was launched in 2015 (Telstra, 2024). The Program's goal was to expand mobile coverage in regional and remote Australia. Across the three LGAs, between 2016 and 2020, 18 Black Spot Programs were completed (nine in SMRC, six in QPRC, and three in YVC) (NationalMap, 2024) A further two are still in progress in QPRC under Round 6 and 7, and two in progress in SMRC through Round 4 and Round 5A (NationalMap, 2024).

Telstra is the main mobile network service provider across the region, with Figure 20 and Figure 21 displaying the predicted likely areas of outdoor coverage (Telstra, 2024)They show that Telstra's 4G mobile network covers a decent portion of the three LGAs, however there are still some areas with large gaps. Telstra's newest mobile network technology '5G', covers the towns of Jindabyne, Berridale, Cooma, Bombala, Queanbeyan, Bungendore, Gundaroo, and Yass (Telstra, 2024) Their older mobile network technology '3G' is set to be discontinued mid-2024 (Telstra, 2024).

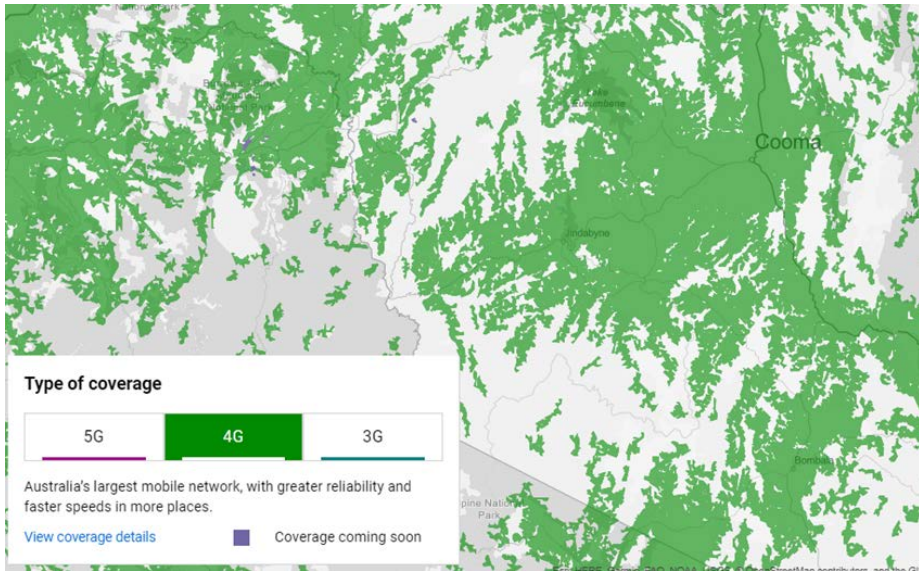


Figure 20 SMRC Telstra 4G mobile network coverage (Telstra, n.d.a)

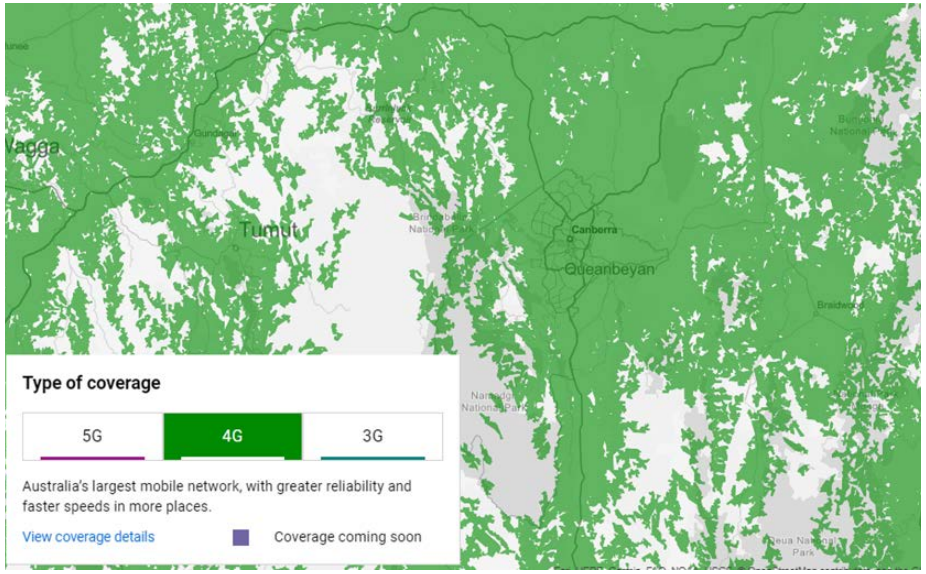


Figure 21 YVC and QPRC Telstra 4G mobile network coverage (Telstra, n.d.a)

03

History of Drought Impacts

3. Drought, climate and impacts

Australia is the driest inhabited continent on Earth with one of the world's most variable rainfall climates (DCCEEW, 2021). This makes drought a defining feature of our history, with Australia experiencing severe drought on average once every 18 years (NSW Government, 2024d). Around 90% of the rain that falls in Australia evaporates back into the atmosphere, and around 2% soaks into the ground to re-fill groundwater reserves (NSW Government, 2024d) That results in less than 10% as runoff which is NSW's most important source of water for agriculture, urban water supplies and ecosystems (NSW Government, 2024d) Drought is set to have an increasing effect on the country as a result of climate change, with the frequency, intensity and duration of severe droughts expected to increase, particularly in inland areas of NSW (DAFF, 2024a).

3.1. What is drought

Drought is defined as "a prolonged, abnormally dry period when the amount of available water is insufficient to meet our normal use" (BoM, n.d.). Australia has highly variable rainfall records and in contrast also has highly variable periods of low rainfall. Both the Bureau of Meteorology and (Kirono et al., n.d.)define four types of drought (Figure 22), meteorological, agricultural, hydrological and socio-economic.

Drought affects all parts of the community; from agricultural producers and suppliers, to industry, First Nations people, and the broader community. Droughts are challenging times, with water intensive industries affected by a reduction in output and increased costs. The economic, social, and environmental impacts are not limited to these industries but extend to entire communities and regions. Local loss of production has flow on effects to the regional economy. Drought can also impact human and environmental health including impacts on nutrition, exacerbation of mental health issues, and ecological decline for flora and fauna.

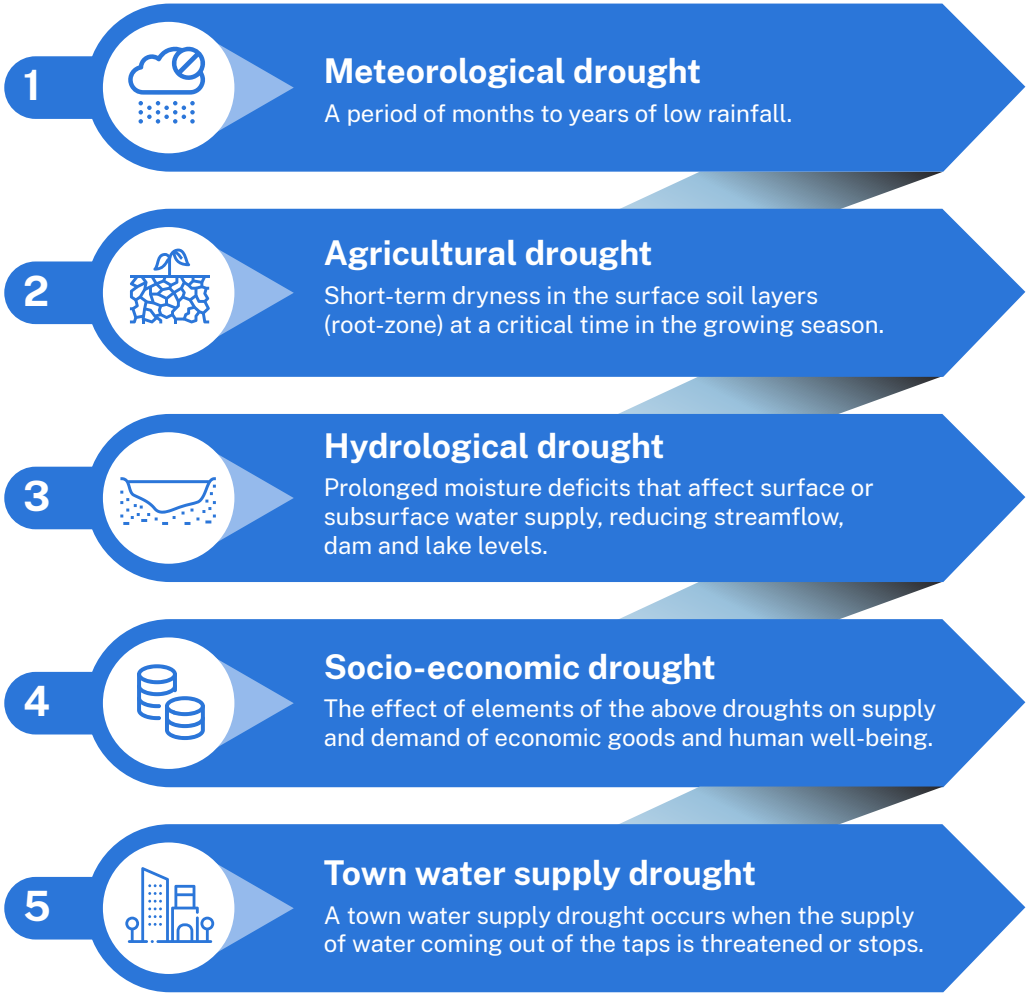


Figure 22 Types of drought (BoM, 2023)

3.1.1. Drought monitoring in NSW

Drought monitoring over the years has become increasingly complex. The most common means of currently monitoring drought is through the Enhanced Drought Information System (EDIS) which is a publicly available drought monitoring tool that monitors seasonal conditions across NSW. The EDIS was launched in March 2018 and is used across government and farming stakeholders to build drought risk awareness, emphasise drought preparedness and improve confidence in drought monitoring and early warning.

A key feature of EDIS is the development of the NSW Department of Primary Industries (DPI) Combined Drought Indicator (CDI) (DPIRD, 2024). The CDI combines meteorological, hydrological, and agronomic definitions of drought (above) using indexes for rainfall, soil and water, and plant growth (DPIRD, 2024). From these, a fourth index, drought direction (DDI), is developed. EDIS is undergoing redevelopment to provide farmers with world-leading weather and climate data to enable better business decisions. It is important to recognise the CDI provides an aggregated view of NSW, and that on-ground conditions can be different to those displayed in the maps. They provide an 'on average' view of a particular region only.

3.1.2. Stages of drought

Used together, the indexes of the EDIS indicate the stage of drought.

The six stages progress from a non-drought category where all indicators suggest good conditions for production to recovery, through to a Drought Affected (weakening or intensifying) category, a Drought category and into Intense Drought. The five stages are shown in Figure 23 below.

Figure 24 shows the current (May 2024) CDI across the three LGAs covered by this Plan. As can be seen, only the southern end of the Snowy Monaro LGA is currently experiencing drought. Each of the three LGAs have an area that is currently drought affected. In addition, Figure 24 provides additional detail on the drought affected stage (phase 3). The southern part of the Snowy-Monaro Region and the southwestern part of the Yass Valley region are considered drought affected (intensifying), whereas the remaining drought affected zones are in a weakening phase.

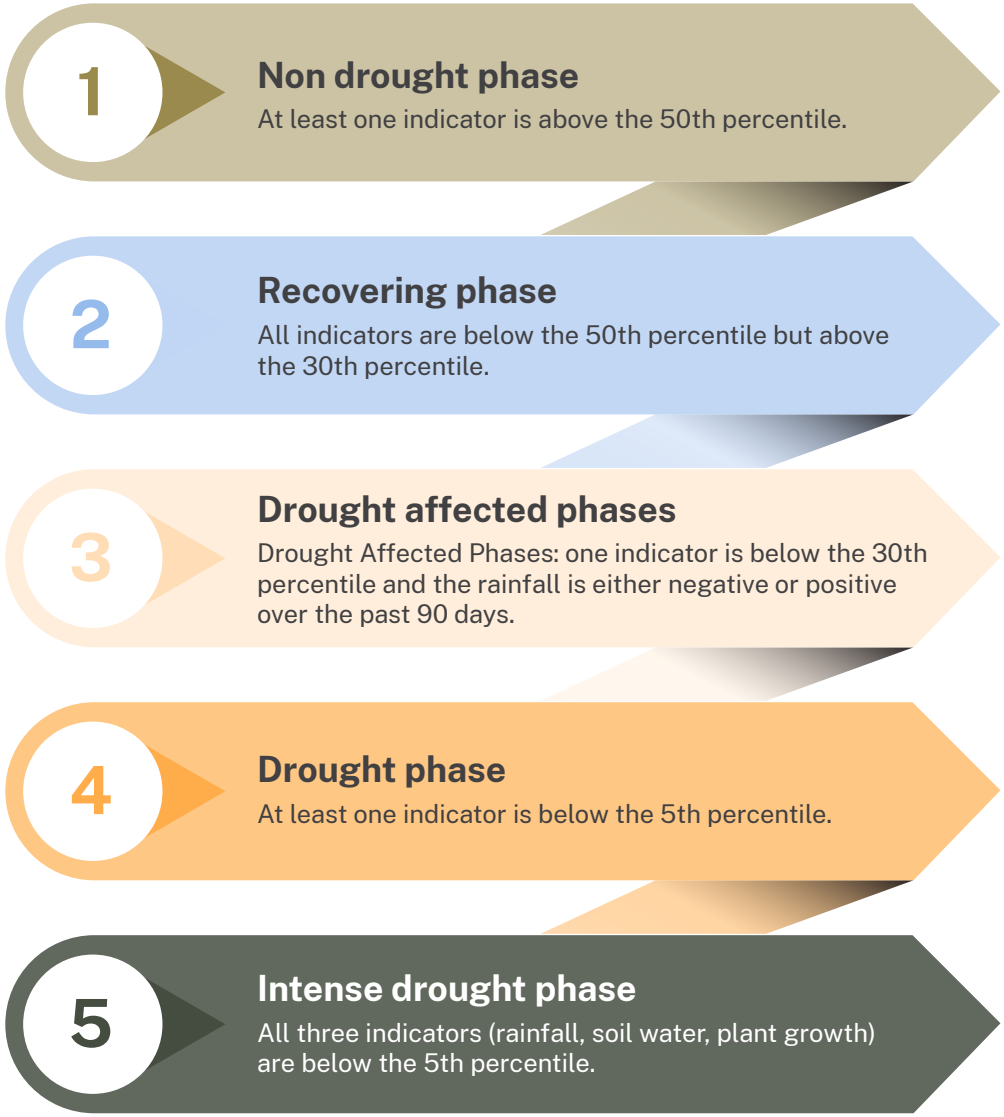


Figure 23 Stages of drought in NSW (adapted from DPIRD, 2023)

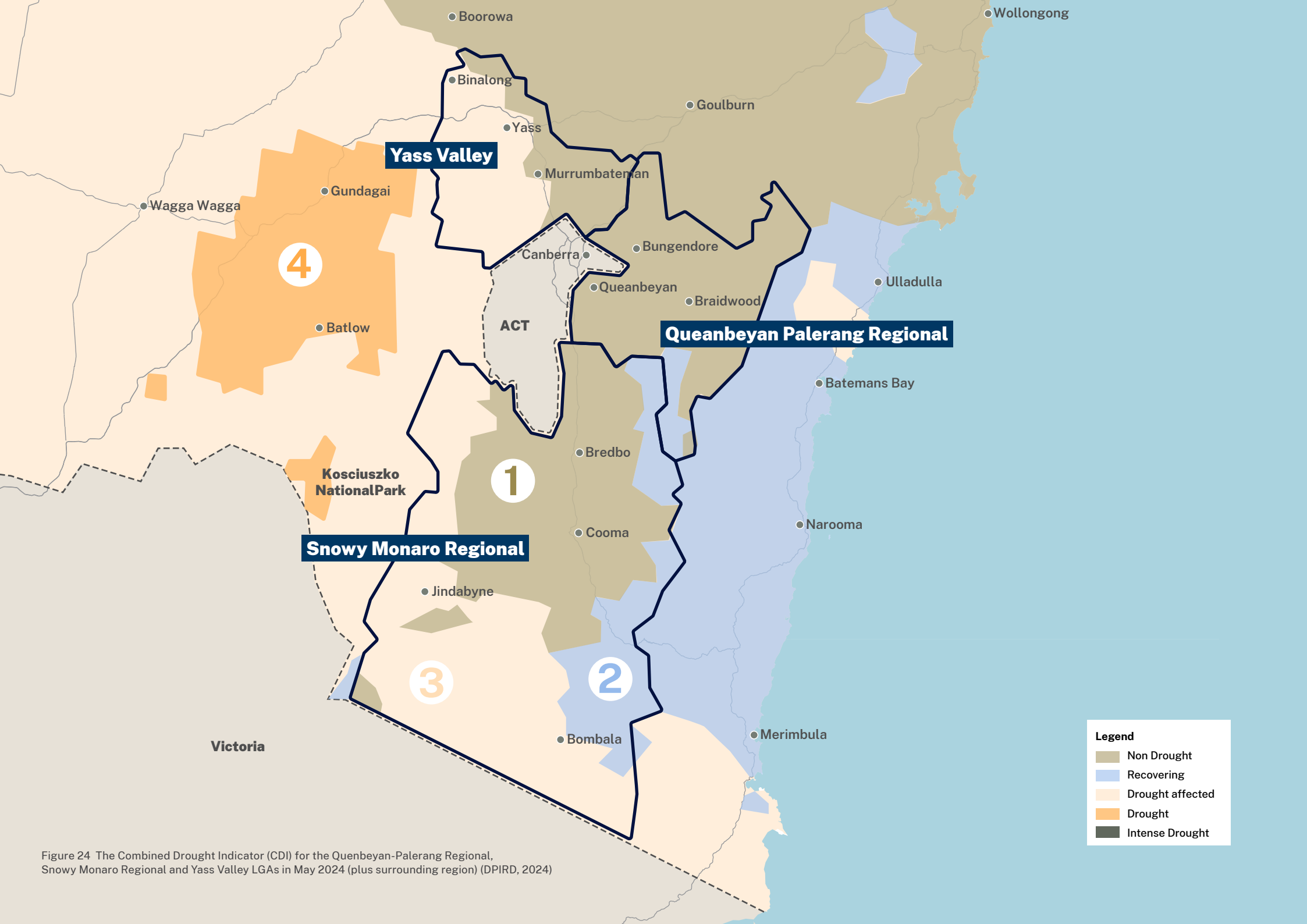


Figure 24 The Combined Drought Indicator (CDI) for the Quenbeyan-Palerang Regional, Snowy Monaro Regional and Yass Valley LGAs in May 2024 (plus surrounding region) (DPIRD, 2024)

3.2. Historical droughts in Southern Tablelands of Eastern NSW

Climate anomalies, such as drought, are regularly observed occurrences in inland Australia and the Southern Tablelands of eastern NSW is no exception. Throughout the years, the area has experienced a range of droughts with differing durations and intensities, as outlined in Table 4 below.

Drought Period	Duration	Characteristics
The Federation Drought	1895–1902	One of Australia's worst droughts, with far-reaching implications for agriculture, transport systems, and the economy. The period saw below average rainfall across much of central to eastern Australia.
World War I Drought	1914–1915	Although relatively short, the World War I drought had a hugely damaging impact on the national wheat industry and is considered significant given the rare occurrence of severe drought conditions in both the southeast and southwest of Australia.
World War II Drought	1937–1945	A series of frequent and intense dry spells occurring between the years of 1937 and 1945. Whilst dry periods were more broken up than those seen in the Federation drought, they were of greater intensity. These conditions were a major driver of the Black Friday bushfires in January of 1939.
1965–1968 Drought	1965–1968	Widespread dry conditions across central, northern, and eastern Australia. This impact was pronounced in NSW with the Canberra region experiencing rainfall just 9% of the annual average in 1965.
1982–1983 Drought	1982–1983	One of Australia's most severe droughts in the 20th century for single year rainfall deficiency. The short, though intense, drought event strongly impacted eastern and central Australia, and was associated with a strong El Nino system. In the southeast, the upper Murrumbidgee River became a chain of waterholes.
The Millennium Drought	1997–2009	Between 1997 and 2009 much of southern Australia experienced prolonged dry conditions, which were most severe in the densely populated southeast and southwest. The Murray-Darling Basin and all southern cropping zones were severely affected. Temperatures were much hotter than previous droughts which drove several record-breaking fire seasons throughout this period, including the Canberra bushfires in 2003 and Black Saturday in Central Victoria in 2009. This may have been the first major Australian drought to be substantially influenced by the effects of climate change. The Millennium Drought ended with two of the wettest years on record for Australia in 2010–11 (Beard et al., 2011, Bureau of Meteorology, 2012).
The 2017–2020 Drought	2017–2020	Following a wet period in 2016, three years of prolonged dry conditions saw regions in southeastern Australia facing rainfall of record lows. The Murray-Darling Basin was amongst the most heavily impacted regions. Consecutive dry cool seasons and the influence of climate systems in the Pacific generated record high fire weather danger across all states and territories as measured by the Forest Fire Danger Index.

Table 4 Historical droughts which effected the QPRC, SMRC and YVC areas (BoM, n.d)

3.3. Regional weather and climate

The climate across the Snowy-Monaro Regional Council, Queanbeyan-Palerang Regional Council, and Yass Valley Council areas varies due to their geographical features. In the Snowy-Monaro region, encompassing the Snowy Mountains, a cooler climate prevails, with cool to cold winters and mild to warm summers (BoM, 2022).

This Region experiences snowfall in winter months and relatively even rainfall throughout the year, with temperatures influenced by its mountainous terrain. The eastern half of the SMRC – the Monaro – experiences a rain shadow effect, leading to lower and irregular annual rainfall. In contrast, the Queanbeyan-Palerang area, situated northwest, features warmer, humid summers and mild winters (BoM, 2022). Here, rainfall is spread evenly throughout the year (BoM, 2022) Further northwest, the Yass Valley region experiences slightly warmer temperatures (BoM, 2022). Summers are warm, while winters are cool, with occasional frosts and light snowfall in elevated areas. Overall, each area exhibits unique climate patterns shaped by elevation, proximity to mountain ranges, and regional weather phenomena.

Droughts in the region are not isolated incidents, being a significant part of the region's history. As discussed in Section 3.2, DPIRD have established three (3) CDIs to aid in defining the various stages of drought. However, there are some meteorological trends that can be observed which can indicate drought. Lower than average rainfall couples with higher-than-average maximum temperatures often over a prolonged period of time can result in drought. Figure 25, Figure 26, and Figure 27 demonstrate this trends for some of the historical droughts that have occurred in the Southern Tablelands Region. The figures have been prepared using data for Bombala, Burrinjuck Dam, and Braidwood to represent the Snowy-Monaro, Yass Valley, and Queanbeyan-Palerang LGAs respectively (the most complete data set). Each of these weather stations were selected as they had the most comprehensive set of meteorological data available.

Given the direct influence of drought on cropping activities and crop productivity many farms are financially impacted. Farm profitability for the Tablelands Region is linked to the impact and severity of drought, the greatest reduction in profitability happens towards the tail end of a drought period (ABARES, 2020).

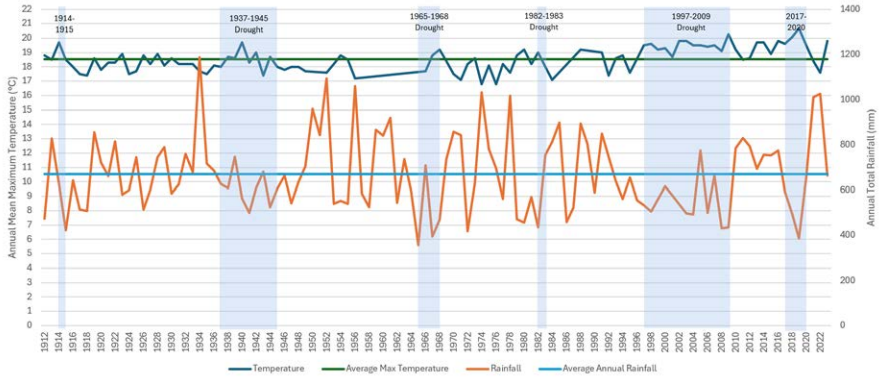


Figure 25 Historical trends in rainfall and temperature data from 1912 to 2023 for Bombala (BoM, 2022).

Note: where there were gaps in available data, information was interpolated and graphed.

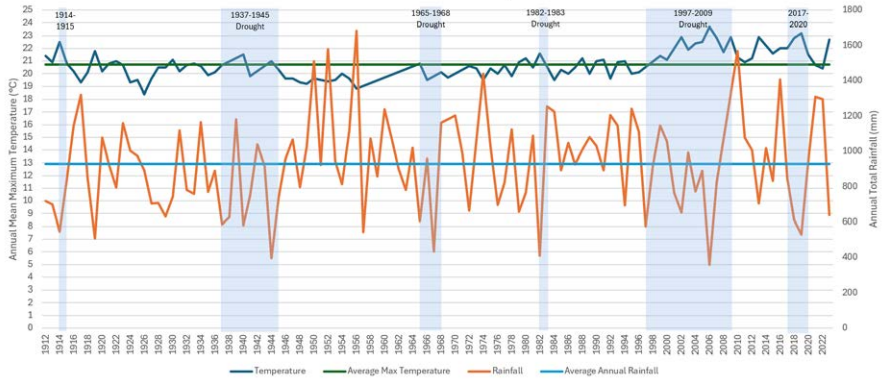


Figure 26 Historical trends in rainfall and temperature data from 1996 to 2023 for Burrinjuck Dam. (BoM, 2022)

Note: where there were gaps in available data, information was interpolated and graphed.

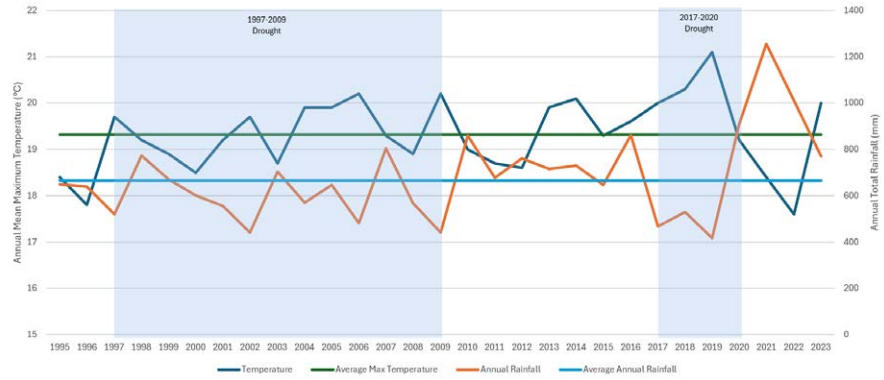


Figure 27 Historical trends in rainfall and temperature data from 1995 to 2023 for Braidwood Racecourse (BoM, 2022).

3.3.1. Climate change impacts

Climate change refers to global, long-term shifts in average weather conditions, such as becoming warmer, wetter, or drier over several decades or longer. There is a growing body of evidence that shows Australia's climate has changed and continues to change significantly, particularly driven by the work of the CSIRO, BoM, DCCEEW; formerly DPE. Temperatures in Australia have risen by about 0.9 °C since 1910 and there is a high level of scientific confidence that anthropogenic greenhouse gas emissions are a major driver of this increase in temperature (BoM, 2018).

Drought projections in Australia are developed using climate simulations which are used to estimate the response of regional climates to anthropogenic change. The latest national drought projections (CSIRO and BoM, 2023) are based on the Standardised Precipitation Index (SPI) with input of monthly rainfall simulated by 21 CMIP5 GCMs and Standardised Soil Moisture Index (SSMI), a key indicator of agricultural drought.

Future median projections suggest that the time spent in meteorological drought, and the frequency of extreme drought will increase over the course of century under RCP8.5 (medium confidence). Additionally, a substantial increase in the temperature reached on the hottest days, the frequency of hot days and the duration of warm spells are projected with very high confidence, coupled with decreasing soil moisture projections (Timbal et al. 2015). The projected change in mean rainfall for the Murray Basin Cluster report is shown in Figure 28.

The CSIRO's My Climate View tool was used to analyse the impact of worsening climate change on temperature and rainfall for the Southeastern NSW region. Through this tool, we can see how the region's climate is predicted to evolve over time using the Intergovernmental Panel on Climate Change (IPCC) representative concentration pathway (RCP) 8.5. Under this climate change scenario, the Queanbeyan region is predicted to have an increase in the number of hot days from 9 (between 1994 and 2023) to 17 in 2050 and up to an expected 22 days in 2070 under RCP8.5, illustrated in Figure 29. This figures also present two historical 30-year periods (in purple) to allow comparison across time.

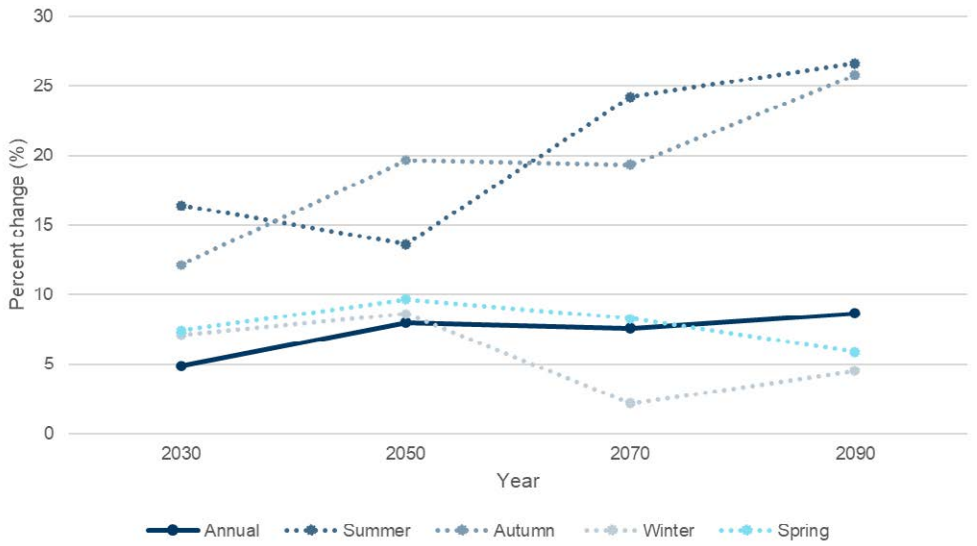


Figure 28 Seasonal changes (%) for rainfall under RCP 8.5 (Timbal et al. 2015)

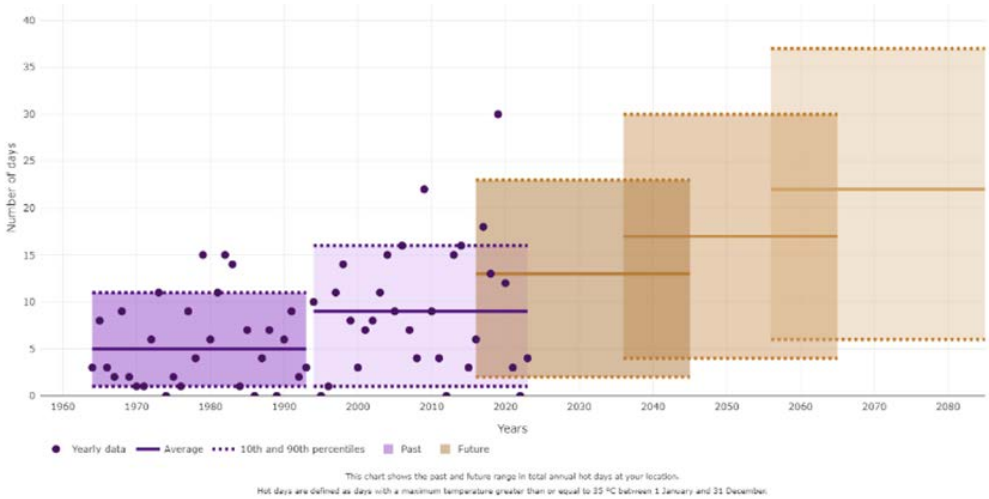


Figure 29 Change in number of hot days (maximum temperature greater than or equal to 35 °C) in Queanbeyan. Future scenario represents RCP8.5 (CSIRO and BoM. 2023).

3.4. Future drought projections

Climate change is making drought conditions in southwest and southeast Australia worse. Climate change has contributed to a southward shift in weather systems that typically bring cool season rainfall to southern Australia. In addition to decreasing rainfall, climate change is driving an increase in the average temperature and in the intensity and frequency of hot days and heatwaves, leading to increased water losses and thus exacerbating drought conditions (Whetton et al., 2015). The region has varied landscapes and thus a range of industries from agriculture and tourism to public administration (AdaptNSW, 2024). Thus, some areas more than others in the region will be more sensitive to the images of changing climate. The Australian agricultural industries is effected by climate variability through variations in commodity prices, with trends of lower rainfall and drought related to lower farm profits (Hughes et al., 2019) Figure 30.

ABARES (2020) has assessed the drought risk by region. They found that that the NSW Tablelands region was at risk of a 52% (compared to the average of 51.3%) change in cropping farm profits between normal years to drought years (ABARES, 2020). The South East and Tablelands regions are experiencing the impacts of climate change, most notably through rising temperatures. Future projections indicate that temperatures will continue to increase, rainfall patterns will shift, and the frequency and intensity of hot days, heatwaves, and fire weather will also rise (AdaptNSW, 2024) .

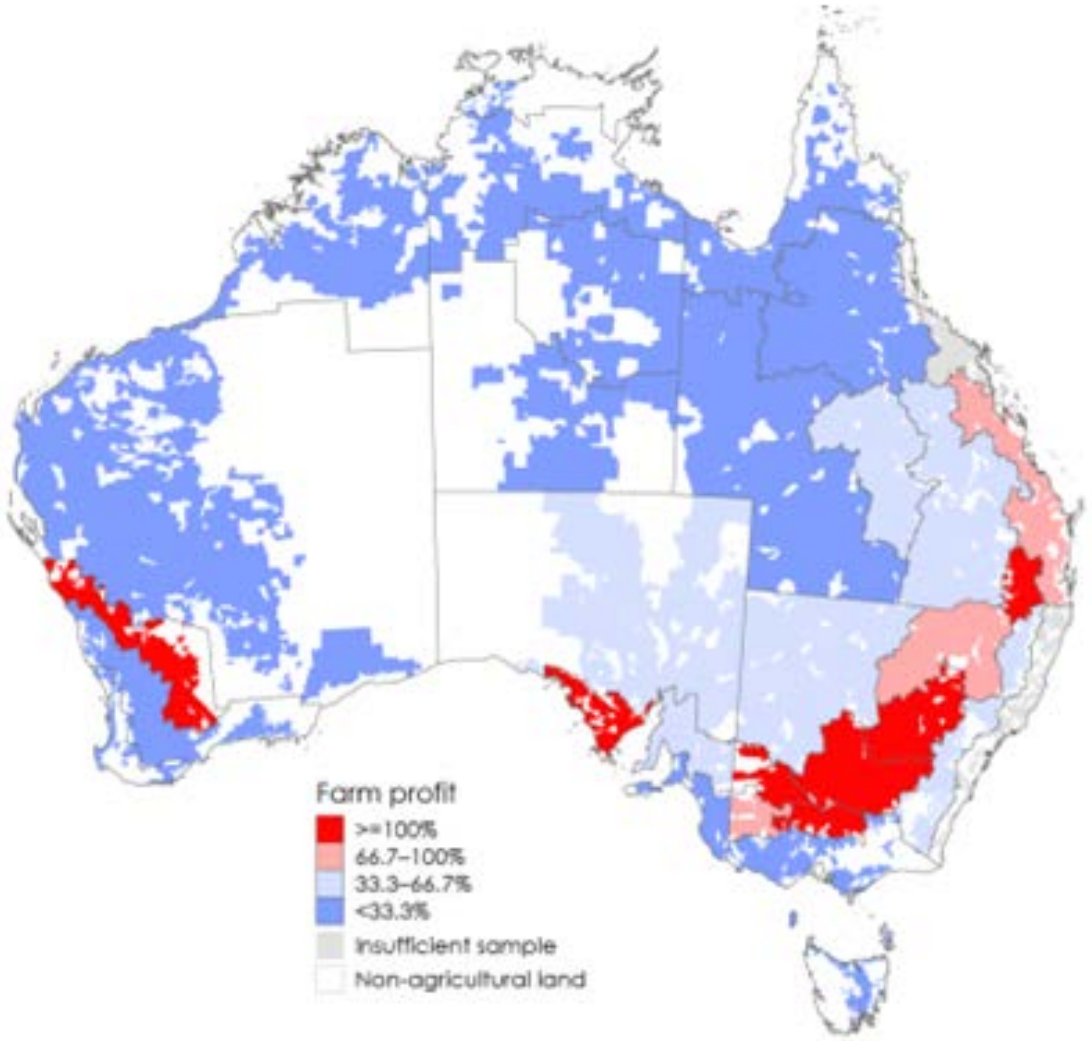


Figure 30 Estimated drought risk by region- farm profits. (Source: ABARES, 2020)

Given the direct influence of drought on cropping activities and crop productivity many farms are financially impacted. Figure 31 shows farm profitability for the Tablelands region from 1990 to the present. As can be seen the compounding impact of drought results in the greatest reduction in profitability towards the tail end of the drought period followed by a significant spike in profit. It will be critical to monitor the trends in farm profitability and the changing climate such that existing systems and services, including individual farmers, are financially prepared for the next drought. Furthermore, given the regions diversity in industries it is necessary to identify key aspects of the region that are vulnerable to climate impacts, along with challenges and opportunities to adapt (AdaptNSW, 2024).

There is high confidence that global temperatures will continue to rise for many decades, mainly due to greenhouse gases produced by human activities (NASA, 2024). This will exacerbate climate extremes already experienced and worsen the duration and effects of drought in Australia. A reduction in winter rainfall leads to a proportionately greater (1.5 to 4 times) reduction in surface water runoff and groundwater recharge (Walker et al., 2021).

Time spent in drought is projected to increase in the future across Southern and Southeast Australia (Climate Council, 2018). The three LGAs are part of two climate clusters, Sothern Slopes and Murray Basin, the majority within the Murray Basin (Climate Change in Australia, n.d.). Future climate change projections suggest that Murray Basin will experience more time in drought and more intense drought, especially in the east (Kirono et al., 2020). In the Murray Basin there is high confidence that soil moisture will decline as drought in the area becomes more apparent, with less rain and higher evaporation rates, especially during the winter and spring months (Timbal et al., 2015).

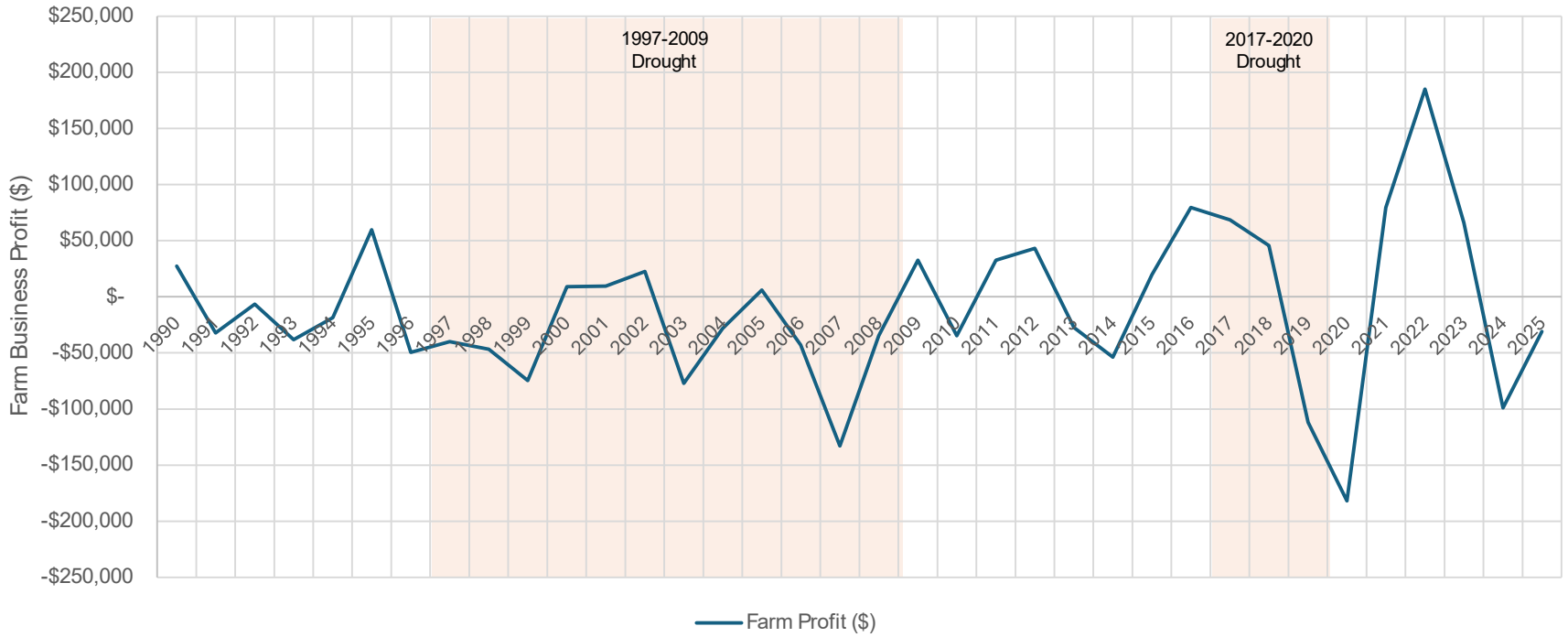


Figure 31 Historical trends in farm profitability for the Tablelands (ABARES, n.d.a).

Utilising projections from CSIROs and BoMs Murray Basin Cluster report (Timbal et al. 2015), the following findings in Table 5 relating to critical drought indices are presented.

Critical variables	Details
Average temperature	Average temperatures will continue to increase in all seasons (very high confidence). By late in the century (2090), for a high emission scenario (RCP8.5) the projected range of warming is 2.7 to 4.5°C (Timbal, 2015)
Extreme temperature	More hot days and warm spells are projected with very high confidence. In some regions, the number of days above 35 °C by 2090 more than doubles under the RCP4.5, and the number of days over 40 °C more than triples (Timbal, 2015)
Average rainfall	By 2090 under both RCP4.5 and RCP8.5, there is high confidence that cool season rainfall will continue to decline. Snowfall and maximum snow depth have declined significantly since 1960 and are projected to continue to decline for all RCPs with high confidence, particularly under RCP8.5 (Timbal, 2015)
Intense rainfall events	High confidence that the intensity of heavy rainfall events will increase (Timbal, 2015)
Evapotranspiration	Projections for potential evapotranspiration indicate increases in all seasons, with largest absolute rates projected with high confidence in summer by 2090 (CSIRO and BoM, 2023)
Standardised Soil Moisture Index (SSMI)	Soil moisture projections suggest overall seasonal decreases by 2090 (medium confidence (Timbal, 2015)
Drought and extreme drought (Standardised Precipitation Index (SPI) is less than -1)	For all scenarios, the model ensemble median indicates an increase in the percentage time spent in drought and the frequency of extreme drought for 2090 (Timbal et al. 2015). Percent of time in drought, duration of time in drought and frequency of extreme drought all show increases for the Murray Basin Cluster.

Table 5 Summary of climate projections

The changes in key climate variables outlined above were considered in the context of impacts on cropping by the Grains Research and Development Corporation (GRDC) to develop understanding of the vulnerabilities of the industry (Hayman, Impact of climate change on southern farming systems, 2020). Table 6 outlines the impacts climate change may have on crops in the grain belt, a region inclusive of more westerly parts of the study area. Whilst this is a general reference, the grain belt is considered to represent a similar productive agricultural region to that seen in broader Southeastern NSW. Key findings for the residual vulnerability after feasible management changes are considered are included in Table 6 below.

Change	Vulnerability
Increased mean temperature	Low vulnerability to warming over coming decades provided that grain growers have access to crops with appropriate development. Vulnerability to warmer seasons will be greatly increased if growing season rainfall was to decline, and warming is associated with heat waves.
Changes to heatwave frequency and intensity	High vulnerability to an increase in spring heat events for all dryland winter crops but especially pulse crops. Spring heat events are more damaging when combined with low soil moisture. In cooler than normal Springs, water use efficiency (WUE) tends to be higher than expected. This suggests moderate heat events might be imposing a cost in most years.
Changes to frost frequency and intensity	Although there is less confidence on the likelihood, there is high vulnerability to any increase in frost severity and frequency for many parts of the grains belt. Agronomists working with frost affected farmers refer to both a direct cost of frost damage and an indirect psychological impact on decision making.
Changes to seasonal rainfall	Very high vulnerability. Although grain growers are highly skilled at managing low rainfall environments, the ongoing profitability of enterprises relies on capturing good seasons and are strongly affected by drier seasons. In medium to higher rainfall parts of the grains belt, a substantial increase in drier than average growing seasons would greatly reduce confidence in management of input levels. Drier conditions would also reduce the amount of higher return and higher risk broadleaf crops.
Changes in the intensity of rainfall	Low vulnerability. A modest increase in the intensity of rainfall will be beneficial. There are risks of water erosion but these can be managed with stubble retention which has high levels of adoption and co-benefits of reducing wind and water erosion risk and increasing productivity.
Elevated levels of carbon dioxide	Changes in CO2 cannot be considered separately from temperature and water supply, and plant breeding advances cultivars suitable to present day conditions by default. In the future there is likely to be deliberate selection of varieties that respond more positively to elevated CO2. Monitoring of changes to pests and disease and revising nutrition will be essential.

Table 6 Components of climate change and commentary regarding increased mean temperature, exposure and changes to heatwaves, frost, rainfall, and carbon dioxide in the Australian grain belt (2020).

3.5. Future climate scenario

The previous sections have highlighted the main factors that may affect the region, in terms of a changing climate, in the coming years, and some of the impacts of these challenges. To enable a more focussed approach to drought resilience planning, a summary of the predictions and the impacts these may have are provided below:

- An increase in the average temperature and in the intensity and frequency of hot days and heatwaves, leading to increased water losses and thus exacerbating drought conditions (Whetton et al., 2015). Warmer temperatures also contribute to longer droughts and harsher fire weather as well as increase animal stress. This can make land unsuitable for agriculture, lead to crop stress and attract new pests.
- Changing rainfall patterns; by 2070 a reduction in average annual rainfall between 10-15% but with more intense rainfall events, with a decrease in winter and spring rainfall and an increase in summer and autumn rainfall (DPE, 2023a; DPE, 2023b). This may impact growth, ability to plant/harvest and increase erosion.
- Increased rate, length and severity of droughts; there is increased potential for droughts that persist for more than 10 years and increased chance of events similar to the 2017-2020 drought going from a 1 in 1,000-year event to a 1 in 50-year event (DPE, 2023b). Primary producers are usually able to weather a drought for 2-3 years, however long-term droughts and increased frequency will likely push more off the land.
- Higher evapotranspiration, an increase of around 5% by 2070 (DPE, 2023a; DPE, 2023b). This has impacts on soil moisture, water availability and therefore crop growth.
- Decrease in water inflows in the region, increasing the risk of dam levels falling below critical levels (DPE, 2023a; DPE, 2023b). This has significant impacts on water security.

This information is combined with the resilience framework and helps to inform the actions included in this plan, to ensure they are building resilience in the region.

3.6. Future scenarios

Aside from future climate scenarios the strategic foresight for regional Australia: Megatrends, scenarios and implications illustrates 5 megatrends that are anticipated to impact regional communities in Australia. Aside from future climate scenarios the strategic foresight for regional Australia: Megatrends, scenarios and implications illustrates 5 megatrends that are anticipated to impact regional communities in Australia (Taylor, 2017) These include:

- Disruptive automation which has the potential to alter job landscapes
- Growing significance of the Asia-Pacific market which influences trade and investment opportunities
- Increased demand for cleaner energy reflecting changing global priorities
- Higher educational attainment which is driving the growth or knowledge-based economies and
- Technical advancements in communication and transportation.

These megatrends create the potential for 4 major scenarios in regional Australia in 2040 that can create either positive or negative impacts

1. Global Niche

Economic Impact: Communities may experience economic growth due to specialisation in high-demand industries. However, this could lead to job losses in traditional sectors due to automation.

Social Dynamics: Wealth may concentrate among industry leaders, leading to increased inequality. Communities could face challenges in retaining youth as they migrate to urban centres for diverse opportunities.

Infrastructure and Services: There may be heightened demand for advanced infrastructure and services to support the specialised industries, potentially straining local resources.

2. Fast and Flexible

Innovation and Employment: This scenario fosters a vibrant economy with diverse job opportunities, particularly in technology and services. Communities could become hubs of innovation, attracting talent and investment.

Cultural Vibrancy: Increased population and economic activity may enhance cultural and social life, leading to stronger community ties and engagement.

Challenges of Rapid Change: The fast pace of change could result in displacement of traditional industries and create challenges for those unable to adapt, leading to social tensions.

3. Natural Advantage

Resource Utilisation: Communities may benefit from sustainable practices that leverage local resources, potentially improving resilience against climate change.

Community Cohesion: A focus on local strengths can foster community pride and cohesion, as residents engage in sustainable practices and local governance.

Economic Vulnerability: Despite the advantages, communities might struggle with competitiveness and productivity, risking long-term economic viability if they cannot adapt to changing market demands.

4. Holding Ground

Stagnation and Decline: Communities may face economic stagnation as traditional industries decline, leading to job losses and reduced investment.

Population Challenges: Outmigration of youth could exacerbate demographic challenges, resulting in an aging population and reduced community vitality.

Social Issues: The lack of growth may lead to increased rural poverty and social isolation, with communities becoming more vulnerable to external shocks like climate change and economic downturns.

These megatrends will significantly impact the regions resilience to drought through economic, social and environmental factors. Understanding these interactions is key in developing effective actions to improve resilience to drought and will shape the capacity of each community to withstand and recover from drought. Suggesting that resilience measures should be considered not just alongside drought but also in the context of the potential future state.

3.7. Drought related impacts

The impact of droughts and the magnitude of such impacts is a function of exposure to drought, the sensitivity of the community, and the adaptive capacity of the community (ABARES, 2022a). Due to the interconnection and interaction between the community, economy, and environment, the impacts of drought can be both direct and indirect, with wide-reaching effects. Drought impacts were identified through the drought literature reviewed as a part of the Plan development.

This long list of drought impacts was then tested with members of the stakeholder reference group who were asked to add to this list and then rate each of the impacts in relation to the effect on their community which produced a priority ranking for each. This provided a customised view of the impacts that most greatly affect the communities within which the Plan operates. Some of this prioritisation is provided in Section 5.2. These impacts were then categorised into three components of social, economic, and environmental. When considered together, these components form the foundations of drought resilience as they highlight vulnerabilities. It is important when considering impacts to note that droughts are difficult to predict in their duration and severity and due to these differences, impacts differ between drought events. Below are the details of impacts identified either through literature (and confirmed as relevant to the region by the stakeholders) or by the stakeholders. A key document for gaining an understanding of drought impacts in the region and generally was the 2022 Southern NSW Innovation Hub ‘Baselining Drought’ report. Other specific references are provided.

The key impacts to the region as advised through community consultation have been summarised below.

Social

- Increased burden on mental health services.
- Increased isolation within communities.
- Impacts on children having lived through drought and being involved with agricultural activities including death of livestock.
- Reduced access to recreational space for exercise and activities, especially associated with water e.g. water skiing.
- Some towns with reduced access to drinking water, leading to increased anxiety and mental health impacts.
- Changing demographics due to sub-urbanisation due to proximity to Canberra
- Increased wear on roads and other assets.
- Seeing countryside in poor health is a source of distress for First Nations Peoples.
- On-going decision-making fatigue and paralysis.
- Mental stress on the farming community from rising financial pressure and increasing debt levels.

Economic

- Reduced numbers of tourists visiting the region.
- Greater strain on the local economy due to lower levels of spending.
- Reduced demand for some services and lack of business confidence.
- Increasing fodder prices.
- Increased need for loans, increased farm and small business debt.
- High water prices and cost of water carting.
- Reduced access to water for agricultural production and industry.
- Reductions in skilled labour in the region.
- Loss of skills, knowledge, and business from the region.
- Reduced on-farm income and increased costs.
- Many small businesses in the area require significant support when resources are scarce, and a loss of personal income leading to business failure and family financial stress with flow-on effects.

Environment

- Rainfall deficit leading to loss of crops, fodder supplies, shelter belts and native vegetation (resulting in loss of biodiversity).
- Drying of the regional landscape.
- Increased presence of local wildlife and invasive species in regional communities, aggravating the impact of drought.
- Additional pressure on water resources including increased pressure on wetlands and stream beds leading to riparian damage.
- Reduced maintenance on Council assets such as parks and gardens (due to water constraints).
- Decline in locations of cultural importance.
- Decreased river health.
- Increased frequency of fires and associated negative impacts on ecosystems, community health and wellbeing and water quality.

04

Listening to local experience

4. Listening to local experience

The outcomes of this Plan are born from community voice, which will support locals in their journey towards drought resilience. As drought impacts every facet of regional communities, extending far beyond the farm gate.

4.1. Local stories of resilience

Heart of the Storm A Communities Resilience in the Face of Disaster

The Black Summer bushfires left a trail of devastation across Australia, and the Braidwood region was no exception. In the wake of this tragedy, residents Clare Young and Rosie Ricketson sought to transform collective grief into hope and build a more sustainable future. Partnering with the Queanbeyan Palerang Regional Council Bushfire Recovery Centre, they embarked on a powerful storytelling project: the "Heart of the Storm" podcast.

"Heart of the Storm" is a six-part audio documentary series that delves deep into the experiences of over 200 Braidwood residents who lived through the Black Summer. Through raw and unfiltered interviews, the podcast unveils a narrative of resilience, community spirit, and the unwavering will to overcome adversity.

A recurring theme throughout the series is the power of community. The residents of Braidwood came together in the face of unimaginable hardship, supporting one another and demonstrating the strength that emerges during shared struggles. This theme of unity serves as a beacon of hope, highlighting the human capacity for collaboration and compassion even in the darkest of times.

The podcast doesn't shy away from the underlying cause of the devastating fires - climate change. By peeling back the layers of individual stories, "Heart of the Storm" exposes the critical link between environmental health and future bushfire risk. This awareness serves as a call to action, urging listeners to consider the relationship between humanity and the land we inhabit.

Rose Ricketson emphasizes the importance of remembering the hardships endured, not only to honour the past but also to learn from it. The podcast aims to foster open dialogue about future preparedness and collaboration within the community. By acknowledging past challenges, the

"Heart of the Storm" delves into specific stories of heroism and resilience. One such example is the tale of Phil and Sarah, proprietors of the Nerriga Hotel. When disaster struck, they transformed their establishment into a refuge for the community, offering emotional and physical shelter during a time of immense fear and uncertainty. Their selfless actions illustrate the potential for crisis to catalyse resilience and strengthen social bonds.

The Black Summer fires pushed the Braidwood community to its limits, but it also served as a catalyst for positive change. "Heart of the Storm" sheds light on the importance of shared experience, preparedness, and collaboration in the face of adversity. The stories within the podcast offer invaluable lessons for building a more resilient future, not just for Braidwood, but for communities everywhere.

Source: Heart of the storm podcast — **Mona Farm**

Treasure Trail Campaign

In response to the 2019 20 bushfire season, the Queanbeyan Palerang Regional Council developed the Treasure Trail campaign. This initiative aimed to increase destination awareness, boost tourist visitation and expenditure, enhance industry capacity and support business resilience planning.

It takes visitors on a picturesque trail through Braidwood, Bungendore and Queanbeyan. This treasure trail was designed in such a way that it acts as a window into the resilience of local communities. The creation of the Treasure Trail required the collaboration between different members of the community. Local businesses have gotten involved by offering stops along the trail, providing an opportunity to display their unique products as well as share their experiences in navigating the obstacles of the past years including the droughts of 2019/20.

This initiative by Visit Queanbeyan Palerang, provides a marketing tool for local businesses, particularly in under visited areas. It leads participants to forgotten historical sites or hidden gems within the town. This renewed interest brought about a much needed boost to local businesses in these areas and encouraged further revitalisation efforts.

This collaborative spirit of this Treasure Trail showcases the community's ability to work together towards a shared goal while also creating a sense of belonging and connection which are crucial aspects of a resilient community.

Source: Blog | Visit Queanbeyan Palerang | Fastest Growing City in NSW

Mulloon Rehydration Initiative

The Mulloon Institute is a not-for-profit focused on sustainable agriculture and environmental regeneration, aiming to hydrate and restore landscapes using science, education and demonstration sites. The Mulloon Rehydration Initiative is one of those sites. The MRI is a long-term project run by the Institute, with a primary goal is to rehydrate and regenerate the Mulloon catchment to improve agricultural productivity, enhance biodiversity and increase resilience to climatic extremes like droughts and floods.

Historically, deep erosion has resulted in depleted water resources, harming the ecosystem of Mulloon Creek. This land degradation has lowered the water-table, dried up wetlands and dramatically reduced the water holding capacity of the soil, with the groundwater of the region reduced. This initiative aims to rebuild the natural landscape and function of the Mulloon catchment to create a more reliable water resource.

In the Mulloon catchment, the Institute is working with 23 landowners to reverse the creeks' degradation through the restoration of the waterway and regeneration of the vegetation of aquatic and terrestrial areas. By slowing down the flow through the installation of 50+ leaky weirs, there are now prolonged water levels in the creek, resulting in increased soil moisture and improved ecosystem function. Combined with managing grazing approaches, this is leading to increased soil carbon levels. This, combined with the reinstatement of wetlands (traditional carbon sinks), can assist in sequestering carbon from the atmosphere and contribute to addressing climate change.

Catchment-scale projects are inherently social projects that begin with the education and capacity building of communities on the process of landscape rehydration and associated regenerative land management approaches. The Mulloon Rehydration Initiative has developed a 'bringing the community along' approach to ensure that all stakeholders, including landholders, regulators, researchers, and the broader community, can engage with the project.

Recognising the interconnectedness of environmental, social, and economic aspects, the Mulloon Institute, and its partners, are conducting a suite of baseline studies in the catchment. This comprehensive data collection goes beyond just biophysical factors, encompassing social and economic aspects as well. The integrated monitoring studies allow researchers to assess the project's long-term impact on the entire landscape, demonstrating the crucial link between a healthy environment, thriving communities, and a more robust agricultural sector. Working alongside partners is pivotal to the success of the Initiative.

The Mulloon Rehydration Initiative is an example of a proactive measure in building resilience through the restoration of waterways and wetlands. By rebuilding natural landscape function, the project has increased water availability during droughts and improved water quality, while promoting healthy soils. The holistic approach ensures the project addresses the community's overall well-being, fostering a more resilient social and economic environment while revitalising the water system.

Source: https://themullooninstitute.org/s/2024-Case-study-MRI.pdf

Monaro Farming Systems

Monaro Farming Systems (MFS) was established in 2007 by a progressive group of local agricultural producers with industry support who aim to build capacity and continuous improvement in the Monaro grazing industry. With strong and professional leadership MFS have managed to secure significant project funding, including the Monaro Seasonal Outlooks Project.

The project commenced in 2022 aimed at providing seasonal outlook information for local producers in the Monaro region that would allow for engagement and discussion in a group setting so producers can share and reflect on disaster management and mitigation strategies going forward. The project was funded by the Department of Industry's Black Summer Recovery Grant. This initiative ran from March 2022 to March 2024, with a budget of just over $50,000. It was a strategic initiative focused on building the long-term resilience of Monaro's agricultural sector in the face of a changing climate and increasingly volatile weather patterns.

The seasonal outlooks offered short-term tactical projections (usually covering a 3-month period) based on the Farming Forecaster tool (developed by a consortium comprised of Monaro Farming Systems, Tablelands Farming Systems and Bookham Ag Bureau as well as LLS) and decision support tools. These systems consider native and improved pasture enterprises. By understanding projected pasture growth and animal performance, producers can proactively manage their farm businesses. Producers gain confidence and understanding of season outlooks and trigger points. The presentations provided data on soil moisture, projected green herbage mass, pasture and ground-cover details, historical rainfall and trends, precited seasonal conditions for the following three months. It also provided an opportunity to network and interact with fellow producers on the Monaro.

A series of workshops across 2022 and 2023 introduced and educated producers on the Farming Forecaster tool. This platform integrates data on weather, soil moisture, pasture growth, and livestock performance, providing a holistic view of farm conditions. Workshops, with a total attendance exceeding 600, were held across various locations like Delegate Station, Cooma Showground, Kybeyan Station, Woburn Station, Hazeldean, and Springvale. The Farming Forecaster tool allows producers to access data from a wider geographic area surrounding their property, leading to more precise and localised pasture forecasts. This empowers them to make informed decisions tailored to the specific microclimates within their farms.

By equipping producers with the knowledge and tools needed to navigate seasonal challenges, the Monaro Seasonal Outlooks Project has significantly contributed to building resilience within the region's agricultural sector. This project empowers producers to make informed decisions, optimise resource use, and adapt to changing conditions, ensuring the long-term sustainability of their farms.

Source: Monaro Seasonal Outlooks, Preparing for the Upcoming Season - Monaro Farming Systems

Garage Sale Trail

Residents of the Snowy Monaro region participated enthusiastically in the annual Garage Sale Trail held in November 2023 in addition to a market day on the first weekend with 30 stalls and 500 people in attendance. This community driven event fostered a spirit of environmental responsibility and economic revitalisation. Over $30,000 in local sales diverted an impressive 36.5 tonnes of pre loved goods from landfills, representing a significant contribution to waste reduction efforts. This translates to approximately 40% of the items finding new homes, a testament to the success of the event in promoting resourcefulness and sustainability within the community.

The Snowy Monaro region embraced sustainability and community spirit during the recent Garage Sale Trail, fostering resilience in a fun and eco friendly way. Over 3,841 residents participated across two weekends, turning unwanted items into cash and forging connections with neighbours. This event aimed to reduce waste by giving pre loved goods a second life, promoting resourcefulness – a key aspect of building resilient communities.

A newly released report by Garage Sale Trail and Taverner Research highlights the success of this initiative. On average, garage sale organisers earned $456, while shoppers benefitted from finding affordable, second hand products. By encouraging responsible consumption and fostering a collaborative spirit, the Garage Sale Trail strengthens the social fabric of the Snowy Monaro community, making it more adaptable in the face of future challenges.

Garage sale trails offer a unique opportunity to cultivate resilience in communities. These events not only encourage decluttering and responsible waste disposal, but also foster a sense of connection and resourcefulness. By finding new homes for unwanted items, participants breathe new life into pre loved goods, reducing reliance on constant consumption. This fosters a more sustainable mindset and promotes the value of resourcefulness, both key aspects of building resilient communities.

Additionally, the social interactions that occur during garage sales create a sense of belonging and shared purpose, strengthening community bonds. This social support network proves invaluable in the face of unforeseen challenges, making communities more resilient.

Source: Snowy Monaro Locals Salvage Tonnes of Treasure from Landfill | Mirage News

Snowy Monaro Seed Savers

The Snowy Monaro region implemented the Seed Savers initiative, designed to bolster community resilience. This program centres around the establishment of a network of seed libraries that transcend their role as mere repositories for seeds.

Seed libraries function as sanctuaries for biodiversity, safeguarding a diverse array of seeds. An aim of this initiative is to fortify the community's food security in the face of environmental flux. With a broader selection available, residents are better equipped to identify plant life that thrives under unforeseen weather patterns or pest outbreaks, thereby promoting a more resilient food system.

Furthermore, Seed Savers champions the principles of seed sovereignty and self sufficiency. The program actively encourages residents to engage in seed swapping and participate in seed saving practices, thereby mitigating reliance on commercial seed sources. By envisioning a scenario where access to commercially produced seeds is disrupted, it becomes evident that a community imbued with a robust seed saving culture would be better positioned to weather such a challenge. This fosters self sufficiency and reduces vulnerability to disruptions within global supply chains, ultimately strengthening the community's capacity to adapt to unforeseen circumstances.

However, the purview of Seed Savers extends beyond the realm of seeds themselves. These libraries are envisioned as hubs for the dissemination of knowledge. Through a series of workshops and educational events, residents gain valuable insights into seed saving and sustainable gardening practices. This empowers individuals to take control of their food production and adapt to future challenges. By equipping themselves with the requisite knowledge and skills to cultivate their own food, residents become less dependent on external sources and more adaptable in the face of change, further contributing to the overall resilience of the community.

Source: Snowy Monaro planting seeds of community growth Inside Local Government

Drought Adoption Officer

Funded by the Australian Government's Future Drought Fund through the Southern NSW Innovation Hub and Southern Queensland and Northern New South Wales Innovation Hub, the Local Land Services Drought Adoption Officer Program bridges the gap between the state government and regional landholders. This Program specifically focuses on bolstering drought preparedness and planning through extension services, ensuring landholders have the tools they need to be more drought resilient.

The Program's effectiveness lies in its multifaceted approach. Drought Adoption Officers function on multiple levels, ensuring on-the-ground support reaches landholders where they need it most. This includes providing direct access to expert advice on drought resilience and preparedness strategies. These personalised consultations allow officers to tailor guidance to the specific needs and circumstances of each landholder.

Beyond one-on-one support, Drought Adoption Officers actively reach out to the broader community. They participate in local events such as field days, raising general awareness about drought preparedness measures and fostering connections with a wider audience of landholders. This proactive approach ensures that valuable information reaches a broader range of individuals.

Furthermore, Drought Adoption Officers take the initiative to organise and host workshops on critical drought preparedness topics equipping landholders with the necessary knowledge and skills. Subjects include, confinement feeding techniques to mitigate the impact of drought on livestock, utilising decision-making tools for informed farm management during dry periods, and developing comprehensive farm plans that incorporate drought resilience principles.

Drought Adoption Officers contribute to state-wide knowledge-sharing initiatives. This includes participation in webinars and workshops, fostering the dissemination of valuable information across a wider geographical area. By combining on-site support, community outreach, workshop facilitation, and participation in knowledge-sharing platforms, Local Land Services Drought Adoption Officers play a crucial role in empowering landholders to become more drought-resilient. This comprehensive approach strengthens NSW's agricultural sector, ensuring its long-term sustainability in the face of recurring droughts.

The utilisation of the Drought Adoption Officer role has been instrumental in the planning and hosting of seminars and the extension and awareness of raising events for landholders on drought preparedness. However, the South East region has specific areas of focus within these broader themes. Educational events and workshops focus specifically on weed management, grazing management practices, and emergency response strategies. By focusing on these areas, the program not only educates landholders on best practices but also identifies existing practices and any gaps in effective strategies. This targeted approach ensures landholders in the South East region have the necessary tools and knowledge to be best prepared for droughts.

Source: Local Land Services

Four Winds Vineyard

Four Winds Vineyard, established in 1998, has a rich history marked by both growth and adaptation.

In 2013 the Vineyard completed the construction of a dedicated cellar door enabled by a federal government grant. The cellar door represented a strategic step forward for the vineyard as it not only improved customer engagement but also opened doors for business expansion by creating a platform for direct sales, tastings, and potentially hosting events or workshops. The cellar door marked a turning point for Four Winds Vineyard, solidifying its presence within the local wine tourism industry.

The 2019/2020 summer bushfires were a devastating set back to Four Winds Vineyard and the surrounding community. The unusable grapes cast a shadow over not just the vineyard's livelihood, but also the morale of the local community heavily reliant on the wine industry. However, Four Winds Vineyard's response highlighted the power of community and resilience in overcoming adversity.

Their innovative use of the smoke-tainted grapes for a Riesling gin wasn't just a business decision; it became a beacon of hope. The success of the gin provided a much-needed "small win" for the community, a tangible symbol of their collective ability to adapt and bounce back from disaster. Four Winds Vineyard, through their ingenuity, became a rallying point, reminding everyone that even in the hardest times, there's always the potential for creative solutions and a brighter future, achieved together.

Four Winds Vineyard's commitment to community extends far beyond their immediate surroundings. In a powerful example of social responsibility, they collaborated with neighbouring businesses on a unique four-tonne project. By partnering with their neighbours, Four Winds Vineyard transformed surplus Shiraz grapes into a vehicle for positive change. This collaborative effort resulted in raising a remarkable $40,000 to support refugees living in Canberra. This act of generosity transcended the realm of business and highlighted the profound impact a community can have when it unites for a common cause.

The wine industry presents a unique challenge: it's intricately linked to the volatility of tourism. A successful vineyard thrives not just on the quality of its grapes but also on its ability to attract visitors. Recognising this vulnerability, Four Winds Vineyard has fostered resilience through internal diversification.

Commitment to community was on display during the 2022 floods when heavy rain and a partially closed Murrumbateman Road threatened to isolate businesses and Four Winds Vineyard spearheaded a collaborative effort, uniting five neighbouring businesses in a unique initiative. Together, they launched the "Quick Fix for Flooding" six-pack. This campaign went beyond promoting individual businesses and displayed a symbol of solidarity and a beacon of hope for the entire community.

Four Winds Vineyard's story highlights the importance of adaptation, community focus, and collaboration in overcoming challenges. They are a model for businesses seeking to thrive in a dynamic environment.

Source: About Us - Four Winds Vineyard; Sarah Collingwood

Talaheni

Talaheni, a testament to best practices in regenerative agriculture, showcases the remarkable transformation achievable in Australia. Bought by Robyn and John in 1980, Talaheni was significantly affected by overgrazing, salinity, erosion, and acidic soils. Undeterred by the property's drawbacks, they saw potential and embraced the challenge with unwavering resilience. John's background in farming and agricultural sciences, allowed them to strip back the property and take a fresh look at the potential of Talaheni, weighing both its established benefits and any newly emerged drawbacks.

John and Robyn conducted extensive mapping, including topography, geology and water flow and completely changed the fencing layout to smaller paddocks that recognised soil type, slope, and aspect. Rainfall infiltration was identified and in response specific flora was planted. Fast growing acacia and slower growing eucalypts were planted in rocky areas to help combat against the deeper drainage which is the primary cause of dryland salinity that affects the Yass region. These plantings have protected the land from the elements and reduced the deep drainage entering the groundwater, resulting in fallen ground water levels and thus reduced salinity.

John's decades of groundwater monitoring (his secret weapon) fuel his resilience against climate shifts. The key to the Ives success in the face of a changing climate lies in adaptation, by strategically capitalising on the new seasonal conditions and identifying the crops that now thrive in his growing season. He capitalises on new seasons, planting crops that thrive and using sheep to manage native tree regeneration by controlling competing plants.

Even on rocky, nutrient poor ridges, strategically placed trees act as resilience warriors. They improve soil structure and carbon storage, fortifying the land against future challenges. And by excluding stock from remnant woodlands, the Ives fosters biodiversity and creates healthy ecosystems – a win win that strengthens the overall resilience of the property, even leading to a surprising increase in overall stock carrying capacity.

In response to fluctuating precipitation patterns, the Ives implemented a robust land management strategy, prioritising soil health and biodiversity to cultivate a resilient ecosystem. This not only ensures the continued prosperity of their property in the face of climatic uncertainty but has also demonstrably improved the land's economic viability. Through regenerative practices, Talaheni has transformed from a degraded property into a thriving example of sustainable land management.

Source: Yass farmers lead by example | Blog | Bank Australia

NSW Farmers Drought Dinner

In a positive development for the Yass local farming community, the NSW Farmers Yass Branch secured funding to host a dinner specifically designed to foster connections within the Yass farming community.

To maximise participation, the Yass Branch collaborated with local stock and station agents, this partnership ensured the tables, seating ten guests each, were filled, creating an environment conducive to both social interaction and a sense of community. To further enhance the atmosphere, each table was invited to contribute a donation for a lucky door prize, promoting a spirit of camaraderie and shared experience.

The evening's program included a three-course meal and offered a welcome respite from the ongoing challenges of the drought. It allowed farmers to gather and talk about how the drought was impacting them, finding solidarity in shared struggles and the camaraderie that comes from facing hardship together.

The dinner broke down the isolation barrier often faced by farmers during hardship, supporting an atmosphere where many farmers felt comfortable opening about their struggles, even admitting to experiencing depression. Recognising the potential need for further assistance, the event organisers ensured the presence of mental health services and other local agencies. Representatives were available throughout the evening and attendees were encouraged to connect with them for support, either during the dinner or later.

The dinner itself served as a testament to the enduring spirit of the Yass farming community. It provided a platform for connection, shared experiences, and a much-needed respite from the ongoing drought. This gathering fostered a sense of solidarity and reminded everyone of the inherent strength that lies at the heart of regional Australia.

Source: Carolina Merriman, Chair – NSW Farmers I Yass Branch

Yass Area Network Ready Revegetation Project

The YAN Climate Ready Revegetation Project tackled a critical challenge: fostering resilient landscapes in the Yass Area Network Landcare Region as the climate changes. It empowered natural resource managers with the tools to make informed decisions for successful revegetation.

The project focused on resilience, recognising that increased genetic diversity aids species adaptation through natural selection. The first step involved understanding the projected 2.5 degree temperature increase for the Yass area. This knowledge allowed for proactive preparation.

A comprehensive inventory identified 80 native plant species and mapped their current distribution. This established a baseline for the site's existing resilience. This was followed by meticulously mapping the distribution of each existing plant species, identifying their preferred locations within the site. This detailed knowledge allows for a nuanced understanding of the existing ecosystem's strengths and weaknesses.

The project then assessed long term viability by overlaying climate envelope maps for each plant species on the revegetation site. This compared suitable climates with future projections. The project didn't shy away from challenges. If local plants seemed unlikely to survive, alternative species from regions with similar projected climates were explored, ensuring adaptability.

For critically important species, advanced modelling techniques predicted where they might establish themselves in the future. This proactive approach demonstrates the project's commitment to building long term resilience by assisting species in adapting to a new environment.

By providing a roadmap for informed and adaptable revegetation, the YAN project ensures a healthy and resilient future for our natural landscapes, even in the face of climate change.

Source: yan_climatereadyreveg_summary_20210531.pdf (nsw.gov.au)

4.2. What we heard

The communities of Queanbeyan-Palerang, Snowy Monaro and Yass Valley LGAs are committed to building a resilient and prosperous future. Water and communication were some of the key topics articulated in the survey and were consistent with the SRG themes of interests.

4.2.1. Survey Outcomes

The survey was open until the 26 July 2024, there were 114 responses , 67 responses from Queanbeyan-Palerang LGA, 18 responses from Snowy Monaro LGA, 26 responses from Yass Valley LGA, with the remainder from surrounding LGAs. The current findings align with stakeholder group discussions and are explored in the LGA snapshots (see 4.2.2, 4.2.3 and 4.2.4). To delve deeper, four key questions have been identified and are presented in the graphs.

The results of question 4 in the survey demonstrate that drought resilience extends beyond the farm gate where our communities need to be resilient to survive and thrive, even during times of drought. Items were ranked in the order of priority, by respondents that believe should receive investment to enhance drought resilience in the community. Figure 32 shows that a secure water supply was the most important aspect of the survey according to respondents, followed by skills in agriculture, connected and resilient community, reliable assets and infrastructure, prosperous economy and management and administration.

Question 7 of the survey requested respondents rank six outcomes in terms of effectiveness of local resilience building, Figure 33 shows that the respondents ranked 'investing in water conservation and efficiency' the highest. The top three align closely with the outcomes in Figure 32 above.

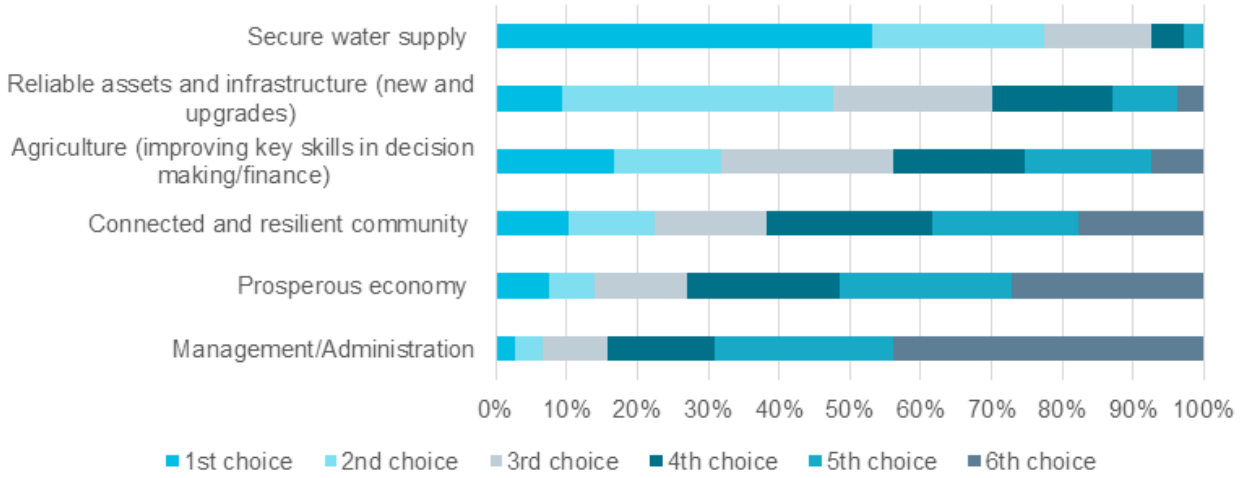


Figure 32 Survey question 4: Drought resilience extends beyond the farm gate where our communities need to be resilient to survive and thrive, even during times of drought. Items ranked in order of priority

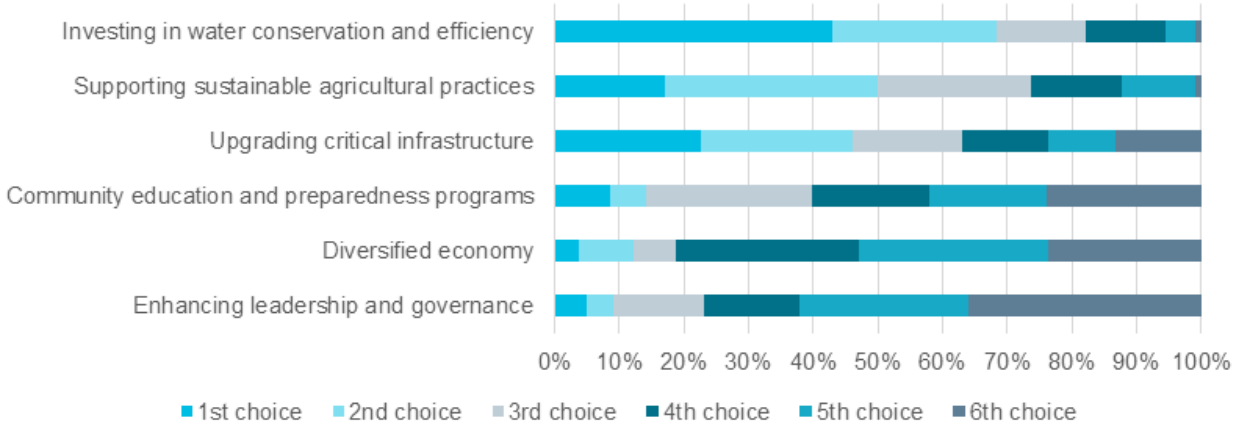


Figure 33 Survey question 7: Ranked from highest to lowest the outcomes respondents believed would be effective in building drought resilience for our region

Question 11 of the survey asked respondents which other economic areas should be considered when looking at a diversified economy. Renewable energy and technology and innovation were chosen as the most popular, as seen in Figure 34.

Effectiveness of current communication and engagement during drought was rated in question 12. Figure 35 captured the responses rate and overwhelming respondents rated no for all options. This is reflective of the information gathered in consultation and written up in the LGA snapshots.

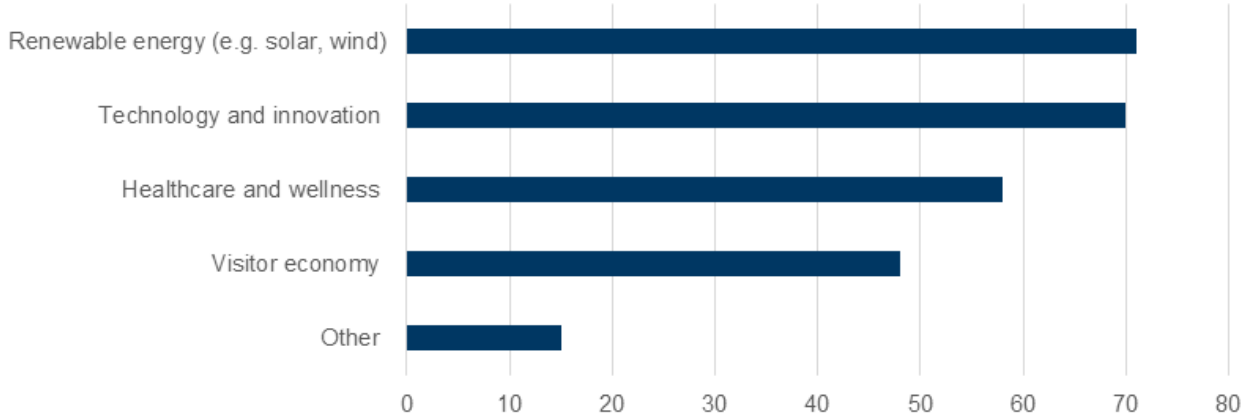


Figure 34 Survey question 11: Specific industries or sectors which respondents considered best to investing in to diversify income sources

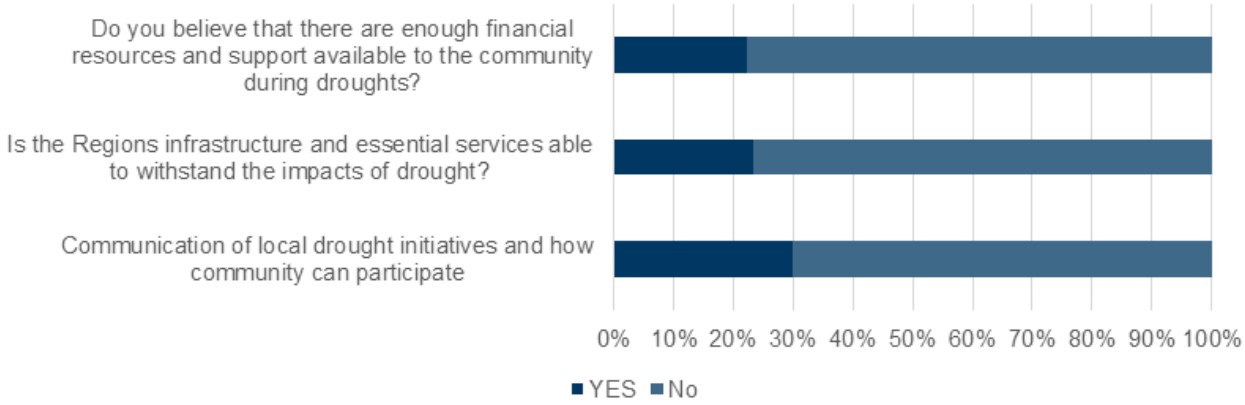


Figure 35 Survey question 12: In your opinion, is the current communication and engagement during drought sufficient and effective in keeping the community informed and engaged?

4.2.2. Queanbeyan Palerang LGA Snapshots

In Queanbeyan-Palerang, a deep sense of community fosters a shared determination to build resilience in the face of drought. Stakeholders highlighted the importance of better water management, to better prepare for natural disasters. Discussions highlighted a clear desire for a more coordinated approach to drought preparedness, with a need for clearer and more accessible information and support services required.

Stakeholders stressed the need to address the current way of thinking about water through educational initiatives focusing on drought and water conservation. Stakeholders emphasised the proactive approach individuals took in the community to create informal social support opportunities for residents. Including extending the opening hours of pubs. However, stakeholders identified shortcomings in existing infrastructure and called for investments to improve it, ensuring better access to resources and services during droughts.

What we heard

Impacts of drought can be felt across many communities. Some of these impacts, confirmed through the stakeholder consultation, relevant to the Queanbeyan-Palerang LGA include:

- Less discretionary spending in the region, reduced tourism, resulting in impacts on businesses and the local economy.
- Reduction in the level of groundcover and pasture increasing erosion to the invasion of weed species.
- Decrease in mental health due to isolation, stress, reduced social gatherings and recreation opportunities. Increased alcohol and substance abuse.
- Increased threat of other natural disasters due to drought e.g Bushfires.
- Additional pressure is placed on local infrastructure accompanied with reduction in maintenance of local assets due to lack of water.
- Increase pressure on youth due to the awareness of financial stresses on their families and they are less able to be involved in their usual activities.
- Water demand and cost increase.
- Loss of skilled workers who move away to seek alternate employment opportunities.

4.2.3. Snowy-Monaro LGA Snapshot

Stakeholders identified a diverse range of impacts, including economic, environmental, community and governance. The community identified that increases in city to country engagement and lifts in the community spirit were net positives from the drought, but also raised that a lack of support for mental health, fragmented engagement methods and initiatives lacking cohesion were significant issues for the Snowy-Monaro LGA.

There was a clear need for a coordinated response to drought that provides targeted solutions to the various facets of drought, such as improving coordination between levels of government, diversifying the economic profile of the region and supporting the Buy from the Bush campaigns.

What we heard

Impacts of drought can be felt across many communities. Some of these impacts, confirmed through the stakeholder consultation, relevant to the Snowy-Monaro LGA include:

- Economic impacts, including:
  - A reduction in tourism, the value of tourism assets and the visitor economy.
  - A loss of skilled workers into the region.
  - Small businesses relying on support, resulting in losses of personal incomes leading to business failures and family financial stresses.
- Environmental impacts, including:
  - Reduction of water availability, fauna and flora in the region and groundcover and pasture, leading to an increase in erosion.
  - Increased threat of natural disasters; and
  - Increase of invasive flora species.
- Governance impacts, including:
  - A challenge of how to allocate limited resources during periods of high pressure.
  - A lack of coordination between three levels of government and NGOs during droughts creates a “noisy environment”.
  - Council expected to help and direct support worker
  - A decrease in volunteers and a lack of leadership.
- Community impacts, including:
  - Impacts on mental health from isolation, decrease in social gatherings, decrease in recreational opportunities, distress at seeing a decline in the natural environment.
  - Impact on young people, including a reduced access to sport and financial resources.
  - Financial stresses on businesses from reduced spending.
- Infrastructure impacts, including:
  - Deterioration of road assets due to increased frequency of heavy vehicles and extreme dry periods, increasing the difficulty of truck access.
  - Asset maintenance delays due to a lack of access to water.
  - Unable to store bulk grain during drought, putting a significant strain on primary producers.

4.2.4. Yass Valley LGA Snapshot

The Yass Valley stakeholders identified numerous complex impacts that resulted from the drought, including the impacts of social isolation on communities and young people, reduced incomes from destocking and business closures and difficulties in resource management and allocation. Technological and agricultural improvements, and grassroots initiatives were seen as successes, however the region struggled with insufficient drought funding and financial support and unreliable climate forecasting.

Stakeholders raised a number of ideas that would support the region, such as ensuring funding exceeds political cycles, implementing preparation strategies for resource management and improving the accessibility of health services.

What we heard

Impacts of drought can be felt across many communities. Some of these impacts, confirmed through the stakeholder consultation, relevant to the Yass Valley LGA include:

- Communities become disconnected and isolated due a lack of social activities.
- Children and young people are left isolated without social opportunities to meet, connect and empathise.
- There is an increase in the workload of many within the community. In particular agriculture and agricultural support businesses. The active management required within businesses increases during drought and in many instances the financial stress also means that employees may be let go.
- Sourcing and accessing feed for livestock is more challenging, price fluctuations for feed and livestock also introduce pressure to farmers.
- Reduced income from downgrading of crops, livestock and increased input costs
- Closure of businesses, which leads to underemployment.
- Media portrayal is often unfavourable during drought and can create unnecessary pressure and stress.
- Family upheaval and the pressure of constant decision making during extensive periods of uncertainty can impact general health and mental health.
- Wildlife often moves closer to roads, grazing land and communities in search of food and water. Creating a hazard and further exacerbating the impacts on loss of groundcover and water resources.
- Reductions in income impacts education options for children.
- Water allocations and restrictions increased the need to buy and cart water, introducing additional financial pressures.
- Increased cost of weed and pest controls.
- Longer timeframe of droughts means they “creep up on you” in comparison to fire and flooding.
- Government change and centralisation cause a loss of regional knowledge and lack of local input to solutions.
- Livestock impacted by a decrease in yard sales, restocking at the end of the drought and recovery.

4.3. Key Themes

Consultation was undertaken in Queanbeyan-Palerang, Snowy Monaro and Yass Valley LGA's which provided clear insights into how previous droughts have impacted the community and the issues faced. The main comments are presented in alignment with the key themes in Table 7 below.

Key themes	Responses
Economy **Robust and resilient local economies and agricultural businesses**	• Investment in industries beyond agriculture and support for local markets is a priority for growing the local economy and building resilience into the system. Economic initiatives aimed at countering the slow decline of smaller townships and villages by investing in smaller communities appropriately are valued by community. • Infrastructure, educational facilities, and tourism development are important components of a resilient regional economy. • Partnerships with educational institutions and businesses are deemed essential for building diverse and resilient local businesses and regional economies. • Adoption of circular economy focusing on closing resource loops, ensuring long term availability of materials, and reducing vulnerabilities to external shocks. • Encouraging diversity in jobs and the economy based on the unique locations and assets.
Environment **Maintain and protect the natural environment**	• The balance between environmental flows and agricultural water is critical concern for many of these communities. Access to water and maintaining water security is essential for continued agricultural success. There are significant concerns centred around transmission losses of water and the potential degradation of the water sources, emphasising the importance of responsible water usage and management. • Clear funding processes and long-term planning are seen as critical for maintaining agricultural prosperity. There was continued backing for support mechanisms during drought periods, including tax relief, low-interest loans for infrastructure, and containment areas, reflecting a determination to bolster the local agricultural sector. • Weed and pest management support, including better regulation and increased staffing was seen as critical. • Better promotion of existing agriculture initiatives and programs, including Monaro Farming Systems initiatives including the workshops on drought preparation and the use of the Farming Forecaster. • Water management during droughts but in preparation water wise education campaign within the community. Aimed to encourage sustainable water practices and foster shared responsibility for their water source. • Expansion and promotion of Landcare work throughout the region.
Governance **Strong leadership and collaboration**	• Simplifying funding applications and better community engagement are seen as ways to make support more accessible during droughts. • Active involvement from the local Council and clearer communication processes are essential during drought and is viewed as an essential step to building better trust between local government and the community. This includes building drought preparation Plans and opportunities for information sharing. • The community recognises the importance of working together, both among themselves and with local government and across agencies and businesses. This collaboration can lead to transformative changes and improved access to resources, which is crucial to build resilience. • Improved and clearer access and information regarding drought information and assistance services available. It was highlighted that there are numerous services available, but it isn't easy to navigate to which is appropriate for the individual's circumstances. • Loss of regional knowledge and thus input into local solutions.

Key themes	Responses
Community **Vibrant, connected and sustained communities**	• Accessible mental health services are vital for community wellbeing. During drought many people become isolated, and socialising becomes a very low priority. Need to increase accessibility to counselling agencies for farmers considering their schedules. • Understanding and planning for future community needs identifying those most vulnerable to challenging times. • Education campaigns focused on water wise education, suitable plants for gardens and efficient and effective watering, water use practices and alternative agricultural practices. In addition to education on importance of native vegetation and awareness of innovative management practices and importance of retention. • A collaborative approach to building community resilience which requires everyone's active participation. This stems from council leadership and initiating various partnerships with active agencies all working together towards a common goal.
Infrastructure **Build assets and climate adapted design**	• Support for the rebuilding of the natural landscape and learning how to manage and make better use of water during droughts. • Trucking access is more difficult due to deterioration of assets and increased frequency of heavy vehicles. • Need for climate-resilient infrastructure including roads, buildings, water management is critical for business and liveability in the region. • Adoption of environment standards for future housing developments and buildings for community, including the planted flora.

Table 7 Key themes and findings from community engagement

Considering these insights, the Queanbeyan-Palerang, Snowy Monaro and Yass Valley communities' vision for the future revolves around improving water management, a diversified, resilient economy, improving and promoting the regions tourism opportunities, additional educational initiatives, and building stronger community bonds. By addressing these key areas, the region can work toward securing its agricultural prosperity, nurturing community wellbeing, and fostering economic resilience, ultimately creating a more sustainable and vibrant future for all residents.

This feedback collectively conveys a community working to secure its agricultural prosperity, deepen social bonds, and broaden economic horizons to ensure its long-term resilience in the face of drought and other challenges.

The feedback also highlights a forward-looking community that desires improvements in built infrastructure and technology. The shift towards online engagement following COVID-19 was acknowledged, suggesting an openness to technological advancements.

4.4. Initiatives refinement

Following community consultation, the ideas and initiatives from both the literature and consultation were collated into a long list.

The investment logic used included a:

1. problem statement
2. key questions
3. assessment
4. validation.

4.4.1. Problem Statement

Regional economies will continue to be impacted by droughts, which are predicted to become more frequent and severe into the future. Drought Resilience Plans are required to identify the steps which communities should take to mitigate these impacts.

Drought Resilience Plans should be developed by Local Governments working together so they are actionable and relevant to individual communities.

4.4.2. Key Questions

- Impact: How is the region impacted by Drought? Which impacts are most acute?
- Actions: What actions or initiatives can provide support to build the region's drought resilience? Which of the actions deliver the greatest benefit to the region?
- Concept: What is the anticipated scope of the identified action?
- Benefit: How will the region benefit?
- Prioritise: How well do the actions address the three pillars of resilience? How feasible is the action and is there a level of shovel-readiness? Do Councils' have the capacity and influence to undertake the action?

4.4.3. Assessment

Through the SRG, the topmost severe drought impacts under each theme were confirmed and rated as low, medium or high impact to their respective LGAs. Each idea and initiative (potential actions) were coded with this information. A score relating to the relative level of Council influence, benefit to the community and the feasibility of implementation (how shovel-ready the idea was) was given. In this way, each initiative had a score which enabled the prioritisation of ideas.

Initiatives were considered a priority where the benefit of the action was high and Councils have the greatest level of influence (Figure 36).

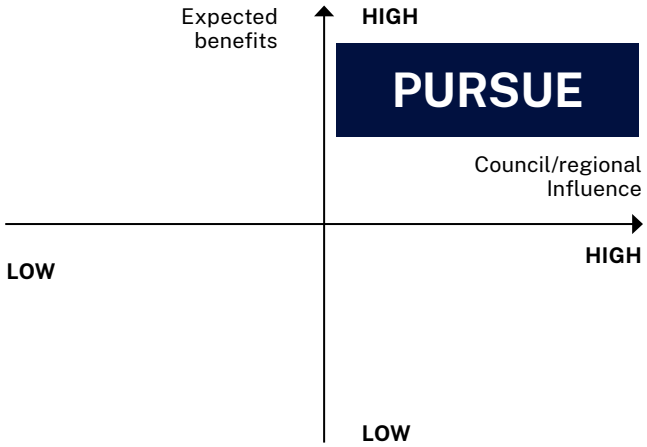


Figure 36 Assessment Matrix

4.4.4. Validation

Following initial assessment, several questions were considered to further refine the initiatives and prioritise them.

- Does the identified action align with Councils' general strategic direction?
- Beneficiaries – what are, and who receives, the expected benefits of the action?
- Ease of implementation – is there a need for significant regulatory, political or legal changes?
- Timeliness – How long will the action take to complete?
- Financial – Is there funding available and what is the cost, including transactional costs? What is the source of funding and who will pay?

The SRG was involved in validating the assessment and prioritising actions.

05

Drought Resilience Actions

5. Drought Resilience Actions

5.1. What has already been done to build drought resilience

Throughout the years extreme climate events, including droughts, have driven the Southern Tablelands communities to take action to improve resilience to these events. Communities have sought to solve their own problems and find solutions from within their own regional capacity. This has resulted in programs and initiatives orchestrated by a number of organisations which support the pillars of social, economic and environmental resilience to drought. Much of the effort has come from individuals who are community minded and have sought to implement action to help themselves and their communities during these challenging times. The case studies in Section 4.1 of this Plan highlight how the region has responded to drought.

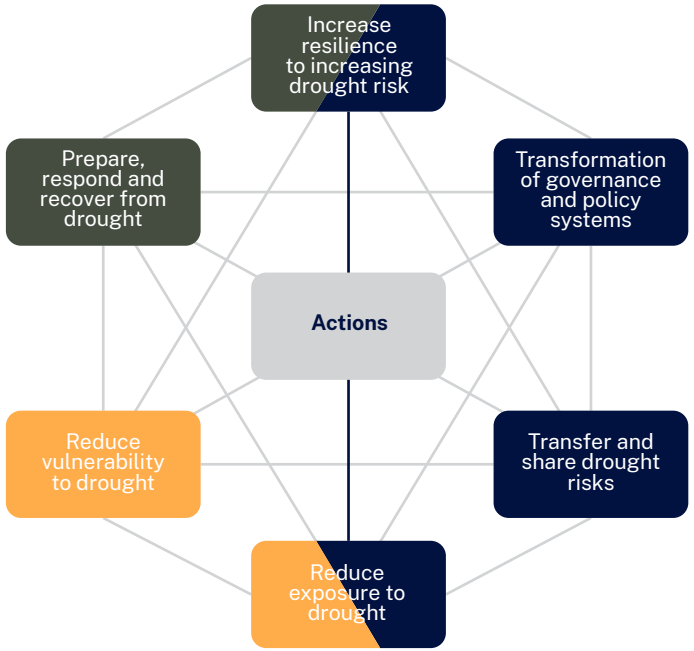
In addition to this, the NSW and Commonwealth Governments have undertaken significant effort to increase resilience to drought. A sample of the programs and plans in place are listed as follows:

- Commonwealth Drought Resilience Research and Adoption Program which has five components that focus on farmers and rural and regional communities to prepare for drought (DAFF 2024a).
- Rural Assistance Authority (RAA) offering a range of loans, grants, advice, and assistance to support both preparedness and crisis.
- Rural Financial Counselling Service (RFCS) provides free and independent financial counselling to eligible businesses experiencing, or those at risk of, financial hardship (DAFF, 2024b).
- The Department of Primary Industries (DPIRD) is home to the Drought Hub which contains a range of information applicable to primary producers to assist with drought along with providing extension and adoption services.
- Local Land Services (LLS) Drought Adoption Officers have been strategically located across the state to assist landholders with drought planning and preparedness extension services.
- DPIRD has supported local Councils and communities to develop Regional Economic Development Strategies, which include information on strategies and enabling actions to guide and support economic development priorities for each region.
- NSW DCCEEW – Regional water strategies are being prepared across the State. The three LGAs fall under the Murrumbidgee, NSW Murray and Greater Sydney Regional Water Strategy areas which have identified focus areas for improvements to water security in town water supplies. DCCEEW offer a range of other supports and programs such as Safe and Secure Water and Town Water Risk Reduction Program which are aimed at addressing the main risks to regional water safety and security.
- Rural Development Corporations exist for the agricultural commodities and house experience in research, development, and extension activities to innovative agriculture e.g. Soils RDC.

The following sections describe the actions to progress, arranged by the five themes. The need, the action, and the expected outcomes are provided, along with how these contribute to building resilience and the responsible parties involved. The metrics to measure action progress are provided in Section 5.4.

5.2. Opportunities identified

From the consultation process a long list of ideas was compiled from the community on how impacts of past droughts had been lessened and what had potential to lessen impacts in future droughts. The long list includes of absorptive, adaptive and transformational resilience actions, tested through the co-design process, is presented in Table 8 below.



	Theme	Opportunities identified during engagement
	**Economy**	• Proactive education of alternative agriculture technologies • Diversify jobs and the economy based on unique location and assets of each location, including diversity within business where there is more than one stream of income. • Help small businesses to diversify and build resilience through a range of measures including education and training. • Reinvigorating Buy from the Bush and similar campaigns that promote and encourage buying locally. • Investigating options to create and promote First Nations tourism products and employment opportunities. • Diversity in the economy that recognises restricted labour capacity. • Develop a Circular Economy to assist diversification for the region. • Increase the training in financial literacy and business education. • Promotion of education and awareness that shows farmers new methods of production and ag-tech. • Increasing access to farming succession planning so that new entrants understand what they are getting themselves in for.
	**Environment**	• Increase the support for pest control and weed management. • Expansion and promotion of Landcare work. • Promotion of the work of the Eurobodalla Botanic Gardens as an innovative organisation that is creating benefit in soil health, threatened species, ecology and tourism. • Promotion of Monaro Farming System as a model of innovation formed to create benefit for local agricultural producers. • Increasing the knowledge of groundwater and the linkages and interaction with surface water. • Increased promotion and uptake of activities that hydrate and restore the landscape. • Increase the implementation and funding for local climate strategies such as Urban cooling strategy focused on planting strategy to cool the urban landscape. • Grow crops that are less water intensive. • Increase the education and awareness of water licence conditions so people are not taking water they are not entitled too. E.g. overuse of bores.
	**Governance**	• Create a drought preparation strategy for the community that details how communities can access resources (education and agencies) that help in drought preparedness. • Communication channels across community need strengthening. E.g. better access to information including drought, what's on in the community and who is doing what. • Reducing the amount of red tape associated with accessing emergency support measures e.g. freight subsidies. • Having a preparation/management/business plan that incorporates drought, fire and flood and links to basic resources and gives hope for businesses and communities. • Communication about early warning signs, water conservation and financial preparedness associated with drought. • Improve the Communication and messaging system across the community not just in response to drought but also to improve social connectedness and two-way messaging between the Council and community. • Better use of existing resources such as buddies/mentors/councils to prepare for drought, transfer of knowledge and alignment with other events such as fires, floods etc. • There needs to be better integration amongst drought agencies. • There needs to be less disturbance to how we deal with droughts from the political cycles. • Improving knowledge of drought, its impact and what to do to prepare.

	Theme	Opportunities identified during engagement
	**Community**	• Increase accessibility to agencies and counselling that align with the farmer's schedule. • Be more responsive and adapt to the changing demographics of the community and the expectations of new residents. • Do not reinvent the wheel when it comes to drought initiatives. Revaluate what already exists to find new ways to adapt this to changing needs. • Coping with change assistance – resilience training and support that helps with adapting to change. • Increased need for accessible mental health plans. • Communication, specifically greater dialogue across industries affected by drought. Improve communications between producer groups and other stakeholders e.g. LLS, DPIRD and council. • Better understand the impacts of drought on at risk groups and assets within the community. • Ensure that business and liveability are retained in the region. • Improved access to grant writing support for the community that allows organisations greater opportunity to seek funding to support local initiatives.
	**Infrastructure**	• Infrastructure is suitable for feed and stock transport during droughts. • Ensure that infrastructure is suitable given the changes in climate and improving the asset sustainability. • Improved water management and input to water sharing plans in consultation with DCCEEW and WaterNSW. • Water access during droughts is a key issue for our region. Some of the smaller towns and villages in our area do not have access to reliable water for their household or farm/livestock. Better access to water and reliable supplies are needed. • Water trucking needs increased equity/access and policing.

Table 8 Long list of opportunities identified during the co-design process with SRGs

5.3. Priority actions

To meet the objectives of the Plan, actions have been developed under the five themes (with accompanying sub-themes) identified throughout this Plan.

Through the SRG's and one to one meeting with stakeholders' data was gathered on:

1. What was working well to respond to drought,

2. What was not working well, and

3. What needed to change.

This process helped to identify and focus the idea development on existing measures that the community valued, those interventions that didn't support resilience and those that existed and either needed to be changed because a component of the system wasn't working or there is a need that isn't being met e.g. there is drought information available however the gap/missing element is that there was a lack of awareness about where to find this information therefore how can the plan address this gap.

The pathways to increasing resilience are based on the community response in identifying their highest vulnerabilities to drought, their greatest source of 'pain' or where they have identified that the market is failing. This community voice is echoed in the regional data highlighted in section 2 of this Plan.

The actions have been characterised as absorptive, adaptive and transformative. Achieving a level of resilience will be determined by many factors including the ability to influence behaviour change and participate in resilience initiatives. Meaning that actions can have differing levels of impact depending on the level of uptake by the individual.

A range of resilience levels are indicated across several actions where they level of uptake of the activity can be variable an example of this could be extension focused on improving soil quality and pest management. Participants will learn practical skills to implement adaptive change in their businesses, preparing them for future droughts. Some will integrate these skills directly, while others may benefit more from broader extension programs or complementary initiatives that offer a transformative impact. Much of this variance in resilience levels is down to addressing the barriers to change.

Actions have been categorised as absorptive where an intervention is likely to reduce the impact of drought. This assumes that current resilience levels are maintained and through extension of the activity a greater number of community members can participate.

Actions are classified as adaptive where the activity supports system modification or change that if adopted will increase overall responsiveness to drought through better preparedness and planning.

Transformative change is identified where there is a complete redesign of the system.

Each theme provides a detailed need for the resilience action, specific and prioritised actions, the resilience frameworks that applies to each theme or sub-theme and the delivery model that includes a lead agency and potential partners.

The Plan actions have been discussed with some delivery partners to canvas their willingness to lead and support the implementation of this Plan. Many of these responses were provided on a local level and signified a real desire to make changes for the benefit of the region's communities. Further acceptance testing would be required to gain complete consensus with the State and Commonwealth Government and delivery partners where significant resources and funding are identified.

5.4. Theory of Change

The FDF aims to enhance the public good by building drought resilience in Australia's agricultural sector, the agricultural landscape, and communities (DAWE, 2020). This RDRP has incorporated the three types of resilience (environment, social and economic) into each of the drought resilience actions considered as part of the process.

The theory of change used in this RDRP to investigate the ways in which economic, environmental and social resilience can contribute to the Southern Tablelands Councils bordering the ACT vision for drought resilience is outlined in Table 14 below. Using the FDF model (DAWE, 2020), the table provides a more explicit theory of change demonstrating the link between each step in the process.

To recap, the Plan's vision is **"Our community has the confidence to act and address the impacts of drought, empowering us to adapt to change and advance our resilience. We are nurturing communities that thrive through collaboration and proactive planning. By fostering a culture of inclusivity, valuing local knowledge and embracing diversity, we will navigate change, ensuring a sustainable future for all generations."** and defines the current state of the Region's resilience and what needs to change.

If (you do this)	Then	Has the impact of	To create transformational change	Contributes to the vision
Economic Resilience				
If there is more drought resilient Research, Development, Extension and Adoption and new technologies are developed and made more accessible	Then more primary producers will adopt new technologies and production techniques that allow them to better respond to drought. Then there is increased ability to businesses to prepare, plan for drought.	Promoting regional businesses that are self-reliant, productive, innovative and profitable.	Healthy diversified businesses and industry that interact with and contribute to a complex and wider economy.	Communities who have the confidence to act and address the impacts of drought. While nurturing resilience through collaboration and proactive planning.
If there is greater access and awareness of data information and early warning indicators for businesses and communities	Then there is an increased ability for businesses and communities to manage and assess risk and install timely interventions.	Providing varied regional employment opportunities that meet the needs of the region and its residents.		That fosters a culture of inclusivity, valuing local knowledge and embracing diversity to navigate change and ensure a sustainable future.
If businesses within the community have increased awareness and access to business planning and risk management expertise	The businesses will be better prepared to manage, respond and recover from drought reducing the financial exposure to drought.			
If communities can diversify their economies to include industries that provide greater sources of income.	Then there will be less reliance on agriculture, providing more diverse employment opportunities, filling labour shortages, creating more diverse communities that are more able to withstand the economic pressures of drought.			

If (you do this)	Then	Has the impact of	To create transformational change	Contributes to the vision
Environmental resilience				
If local governments, businesses and communities are better able to understand their natural capital and increased awareness of best practice techniques	Then they will better manage natural resources through improved landscapes which produce better environmental outcomes	Regional landscapes that are healthy, sustainable and functioning.	Environmental management is connected across landscapes with communities, governments, primary producers and other stakeholders creating diverse systems that are responsive.	
If governments are better able to manage water resources through new and innovative practices, appropriate infrastructure and increased collaboration and information sharing.	Then they can reduce the impacts of drought and produce better environmental outcomes.	Regional infrastructure that is reliable and fit for future community needs.		
If governments are better able to manage and develop reliable and appropriate climate adapted infrastructure through new and innovative practices, increased collaboration and information sharing.	Then councils can reduce climate vulnerable assets and provide better environmental outcomes.			
If governments and communities are better able to share information and gain knowledge on innovative environmental practices.	Then communities will be more self-empowered to manage their own natural resources.			

If (you do this)	Then	Has the impact of	To create transformational change	Contributes to the vision
Social Resilience				
If community leaders exercise their leadership skills confidently and if community members participate in social and professional community networks and interagency partnerships.	Then there will be greater connectedness, purpose and stronger social capital that supports drought planning and efforts to increase resilience.	Communities that are resourceful, adaptable and thriving.	Communities that respond to drought cohesively and effectively drawing on the social capital, collective preparedness and inclusive community networks.	
If information and knowledge on drought preparation and planning is shared in communities and led by community leaders.	Then there will be greater planning and preparedness for drought in new and innovative ways.			
If community leaders understand who forms the basis of their communities and can incorporate this knowledge into their development of services and infrastructure.	Then services and infrastructure are adapted to suit those most vulnerable to drought and changing climate conditions	Communities that are inclusive and whose needs are understood.		
If community leaders can improve the access to mental health services and communities can improve their awareness of the importance of good mental health.	Then there can better management of the risk factors of mental health and increased utilisation of services which can produce better health outcomes.	Communities that are connected and healthy.		
If communities can improve collaboration, knowledge sharing education and training opportunities.	Then there will be greater connectedness, purpose and stronger social capital that supports drought planning and efforts to increase resilience.			

Table 9 Theory of change

Theme 1: Economy – Robust and resilient local economies and agricultural businesses

The LGA's within this plan identified the need to have economies that were robust and diverse. Each region has differing levels of reliance on agriculture, tourism, construction and public administration. The proximity to major centres such as Canberra can have varying impacts on the region's resilience. The regional stakeholders engaged in the development of this Plan identified the need to attract investment that support development of the economy and creates sustainable employment opportunities that recognise local knowledge. The desire for a robust economy is underpinned by having the appropriate infrastructure in place to support this occurring.

Sub-theme: Business

Each of the LGA's highlighted the importance of developing and maintaining strong regional businesses that enhance the economy and community experience.

Action	Suggested Lead	Potential Partners	Resilience capacity
• Increase the support for smaller regional businesses by: • Increasing access to and promoting the awareness of business management programs that build financial knowledge, budgeting, gross margins, cashflow along with developing digital skills and how to start a new business e.g. Agri-tourism. This could include hosting training to build digital skills to allow business owners to develop online platforms for their businesses. This will provide opportunities to better prepare and manage risks of drought, through skill building and utilisation of technology. • Increasing the utilisation of Business Chambers to create opportunities for likeminded people in business to meet, discuss opportunities, solve problems and build capacity and skills. This will reduce the likelihood of families leaving communities and builds skill that will enable the transition to other industries. • Fast-track and sponsoring retraining opportunities for those within the region who are displaced due to drought. • Reinstating initiatives such as the Snowy Business and Recovery Hub were viewed as positive local initiatives that assisted with bushfire recovery and provided individual and tailored support.	Local Councils	Business Chambers, Business NSW, Service NSW, Business Education Program providers, State Government (including Department of Regional NSW), Business owners, Canberra JO, Regional Development Australia, not for profit providers such as TAFE	Absorptive to Adaptive
• Continue to investigate opportunities to diversification in the economy through the Local and Regional Economic Development Strategies and local planning processes that seek to capitalise on the unique skills, knowledge and features of each LGA. Implementation of these strategies will deliver enabling infrastructure that further enhances the opportunity. This may include opportunities to attract new industry to the region, leveraging the rail or road networks or capitalise on a community's location within each region. The consortia of Local Councils may wish to undertake further individual investigations including business surveys and workshops to inform the future needs of their communities economic development opportunities. • Some of the main macroeconomic trends identified in shaping the Plan area include digital transformation, changing migration patterns and rising uncertainty predominantly from changing climates.	Local Councils	DPIRD, Business Chambers, business owners, Canberra JO, RDA, NSW Government	Adaptive to Transformative

Action	Suggested Lead	Potential Partners	Resilience capacity
• Increase the promotion and awareness of the distinctive tourist attractions of each of the LGA's • Investigate opportunities to recreate the impact of the Buy from the Bush campaign on a regional scale. • Investigate the formation of strategic partnerships where local businesses work together to support local and benefit the community e.g. businesses stocking and promoting local produce and each other. • Increase collaboration with First Nations Peoples in the region to develop and promote bespoke tourism and employment opportunities. • Efforts such as those listed above foster the communities adaptability and encourage empowerment and resourcefulness.	Local Councils/ Business Chambers	Destination NSW, DPIRD, Regional Development Australia, Business owners, Canberra JO, tourism operators/providers, First Nations Peoples, existing business networks	Absorptive to Adaptive

Key Outcomes

- This will provide education and training to develop new skills that can be incorporated into business management. Increasing the toolkit of information available for business owners to manage and adapt their businesses to better prepare for and respond to drought, with reduced reliance on absorptive support measure.
- Creates diversification in industry and employment opportunities where there is less reliance on agriculture.
- Increases employment participation rates amongst the community groups impacted by drought increasing the mobility and retention of the local workforce.
- Increases business literacy providing greater knowledge to plan for and adapt businesses for a changing climate to assist in preparing for drought and mitigation risk.
- Provides an opportunity for participants to improve evidence based decision making through learning of new skills.
- Provides opportunities for likeminded people to learn from each other, work together and create social connection.
- Localised and engaged community resources encourages and promotes collective action.
- Improves social cohesion as communities work together for a common goal.
- Diversified economy through consideration of new opportunities, industries, services and infrastructure which grows the regions economy and supports the local workforce and community.
- Learn from First Nations Peoples' knowledge and skills and provides a diverse source of employment and stimulates the economy.
- Increases social connectedness as communities form partnerships to support and promote each other.

Sub-theme: Agriculture

Action	Suggested Lead	Potential Partners	Resilience capacity
• Increase the available education and training on new agricultural practices and technologies e.g. carbon farming, ag-tech, farming forecaster tool and stock management techniques such as containment feeding and drought • Through strengthening and increasing support for local resourcing for extension and adoption activities. • Investigate how to best utilise and engage the existing service providers and resource and incentivise other potential partners such as Monaro Farming Systems to undertake greater levels of extension and adoption.	LLS/RDC's	DPIRD, NSW Farmers Association, public, private and not-for-profit researchers (e.g. Mulloon Institute) and extension and adoption providers (FarmLink) Monaro Farming Systems	Adaptive to Transformative
• Increase the awareness of farm succession planning for agricultural businesses. So, there is a clear pathway of transition for new farmers taking over the responsibility and management of an agricultural business. This will enable better management of risk and drought preparedness.	DPIRD	Private providers of farm succession planning, LLS, NSW Farmers Association, financial institutions, Rural Financial Counsellors, local solicitors and accountants	Adaptive

Key Outcomes

- This will provide education and training to develop new skills that can be incorporated into business management.
- Builds on trusted local relationships which is key to support the education and awareness of new methods of primary production.
- Considers alternate delivery models for delivery of R&D, which tailor the delivery of services to regional needs.
- Increases the awareness and education for primary producers on new production techniques which provides opportunity to adapt and transform business models.
- Improves environmental and economic resilience through new learning opportunities.
- Provides clear pathways via farming succession that reduce the impact of business disruption. This will enable better management of risk.

Sub-theme: Circular Economy

Action	Suggested Lead	Potential Partners	Resilience capacity
Investigate the opportunity to: • Create a circular economy hub in the region similar to that of Bega Circular Valley. or • Investigate Partnerships with the existing Circular hub to enable the region to participate in the benefits of a circular economy. • Execution of this opportunity creates diversity within the region's economy, employment opportunities and seek to reduce and minimise waste.	The regions industry/ Local Councils	Canberra JO, Researchers, universities, DPIRD, existing businesses that operate in the circular economy, RDC's, private investors, advisors (eg consultants specialising in the circular economy), NSW Government (NSW EPA), The Australian Circular Economy (ACE) Hub,	Transformative where implemented

Key Outcomes

The creation of a circular economy hub will provide:

- Improved social outcomes that align to greater product choice and quality, improved health from reduced pesticide use in food production, improved quality and longevity of products.
- Increased income.
- Stimulates innovation and employment as new local employment opportunities are identified.
- Increased business collaboration between like-minded businesses..
- Improves cost efficiency through the promotion of efficient use of resources, waste minimisation and enhances supply chain efficiency.
- Increases economic diversity through the creation of new innovative businesses and employment opportunities.
- Improved environmental outcomes through reducing emissions.
- Making better use of resources and reducing waste.

Theme 2: Environment – Maintain and protect the natural environment

The LGA's within this Plan identified the need to have economies that were robust and diverse. Each region has differing levels of reliance on agriculture, tourism, construction Protection of the natural environment, adapting to climate change and management of natural hazards are key components to the promoting resilience in the region. The LGA's within this plan recognise that the management, access and reliability of water in the region are one of the key factors to improving resilience within this theme, along with understanding innovative research such as rehydration of the landscape and environmental repair.

Action	Suggested Lead	Potential Partners	Resilience capacity
Advocate for: • Increased education, awareness and compliance for both water licence holders and the broader community on water management, groundwater and surface water. This will allow businesses and communities to be engaged and empowered through new knowledge.	Local Councils, Canberra JO	NRAR/NSW DCCEEW, WaterNSW	Absorptive to Adaptive
• Increasing the level of research and resources available to programs that Hydrate the Landscape Initiatives (such as the Mulloon Institute). • Increasing the education and awareness on how to achieve these outcomes (rebuild the landscape, boost environmental resilience, improve ecosystems and enhanced agricultural productivity via a catchment scale approach) through improved land management techniques.	Mulloon Institute	RDC's, Landcare network, LLS, researchers, Local Councils, universities, communities, DPIRD, NSW and Commonwealth Governments, Innovation Hubs	Adaptive to Transformative
• Increasing the resources available for pest control and weed management in both farming businesses and the broader environment to leverage the most upto date and innovative management approaches and technology.	LLS/DPIRD	Extension and adoption providers, RDC's, researchers, Landcare network, regional environmental groups	Adaptive. Transformative
• Investigate opportunities within the local region to improve the co-ordination, information sharing, and collaboration of work in the environmental and agricultural production being conducted by various agencies including but limited to: Landcare network, LLS, DPIRD, RDC's, Local Councils, not for profit organisations across the region such as Monaro Farming Systems to ensure outcomes are aligned and not duplicated and resources are appropriately allocated to where they are best suited LLS would be best placed to coordinate and facilitate the development of these relationships on a local/regional level.. • Develop an enduring relationship/framework that provides regular opportunities for agencies to meet and discuss prospects to work together, share information, consider programs, policies and projects to ensure consistency and alignment with actions. • Showcasing projects and organisations such as (but not limited to) Monaro Farming Systems and Upper Shoalhaven Landcare Council (USLC) that have been identified through the consultation as innovative organisations in the region. • Investigating opportunities to build the role of existing innovative organisations that are delivering environmental and production outcomes for the region. Organisations such as Monaro Farming Systems and Eurobodalla Botanic Gardens models of operation could be expanded or replicated to benefit other regions.	LLS/RDC's	Landcare network, DPIRD, RDC's, Local Councils, not for profit organisations, environmental groups, Researchers, extension and adoption providers, NSW Farmers Association, NSW Climate and Energy Action, NSW DCCEEW,	Adaptive, Tranformative

Action	Suggested Lead	Potential Partners	Resilience capacity
• Increase and provide regular education and awareness through the creation and delivery of a local climate awareness plan that includes: • Planting of drought tolerant trees, plants and lawns on a regular and reoccurring basis. • Climate education e.g 'Being Heatwave Ready' Upper Shoalhaven Landcare Council • Councils could consider a dedicated area to demonstrate initiatives e.g. community garden • Waterwise messages should be year-round and targeted across the community including schools. • Consider how best to engage local organisations such as Landcare to deliver this education.	Local Council	Landcare Network, LLS, DPIRD, First Nations People, local gardening groups and nurseries	Absorptive to Adaptive

Key Outcomes

- Improved environmental outcomes as new research is undertaken. Communities are educated on new ways to rehydrate the landscape soils are improved and groundcover is protected.
- Increased connectedness of likeminded people in the region to work together on related environmental challenges.
- Improved allocation of environmental resources and activities across local environment groups to be best placed to achieve environmental outcomes.
- Improved management and monitoring of water on a catchment scale.
- Rehabilitation of agricultural land
- Increased education and awareness provide opportunities for communities to adapt their water use, gardens and behaviours to more sustainable levels.
- Improved agricultural productivity.
- Active pest and weed management helps to preserve ecosystems and ecological balance.
- Reduced costs from lost production.
- Helps preserve recreational benefits, waterways, and long-term sustainability.

Theme 3: Governance – Strong leadership and collaboration

The theme of governance seeks to act to support strong, transparent and accountable leadership. Communities that are involved and engaged in the decision-making process, that invest in the development of the next generation of leaders and youth and improve community ownership and cohesion. Many of the stakeholders involved in the Plan development sighted the need for improved communication to be embedded amongst all the plan actions as it was a key component of what was missing in many instances. Local Councils are often also looked to for messaging and information in times of hardship and there is an expectation that Councils respond to and deliver outcomes for their communities.

Action	Suggested Lead	Potential Partners	Resilience capacity
• Investigate the opportunity to engage a Drought Resilience Officer within the region that holds responsibility as follows: • Acts as councils point of contact to disseminate drought information to the broader community. • This would include maintaining a directory on councils' website of organisations that provide information relating to drought e.g. Bureau of Meteorology, DPIRD. • Acts as a connector of people and information and provides reference to agencies that provide drought services. • Develops a Drought Management and Drought Communications Plan which details: • The when, what, where, how and who Council will respond under drought conditions. • The agencies that have responsibility for certain areas in drought (disaster). • Add dot point: how to engage with all sectors of the community on the regions drought response. • What council is responsible for a how it will go about communicating these messages. • What options/assistance council can offer during drought. • Any changes to services and infrastructure that will impact the community. • Where to go if you need assistance or more information.	Local Councils	Canberra JO, DPIRD, LLS, Rural Financial Counselling, Not for Profits e.g., Salvation Army, Local Health District and Primary Health Network	Adaptive

Action	Suggested Lead	Potential Partners	Resilience capacity
• Formalisation of agency networks that hold responsibilities for drought. • The Drought Resilience Officer could be council's representative at this forum.. • This will enable early monitoring of changing climatic and resilience conditions to be regularly discussed. • Ability to share information/products and services offered by each agency. • Ability to stand up resources or discuss reallocation of resources to areas preparing/approaching/ enduring and recovering from drought e.g. a pop-up shop in Yass for a week where you can see LLS and the DPIRD and the rural financial counselor at one time.	LLS	the Bureau, DPIRD, Local Councils, Climate, Local Health District, DRNSW, NSW DCCEEW, WaterNSW, RFCS	Absorptive to Adaptive
• Advocate for a simplification in the approval process to access drought funding. To ensure critical assistance is timelier.	NSW Farmers Association	DPIRD, LLS, DRNSW, Local Councils, RFCS	Absorptive

Key Outcomes

- Supports drought preparedness and timely response through the formation of local networks that understand the community and need and influence resource allocation.
- Improve the effectiveness of communication by utilising non-traditional channels such as meals on wheels, salvation army and local organisations to deliver communication and messaging.
- Provides timely and effective information to the community on drought (and disaster).
- Connects people with resources that can assist them to prepare for and endure drought.
- Provides a local view of drought information and application.
- Connects people and groups to work together to learn from each other and solve problems together.
- Allows resources and support to be identified and implemented in a timely manner to support communities during drought.
- Provides opportunity to establish and maintain important relationships.
- Creates understanding of and connection to resources (organisations) that provide both economic and social resilience support.
- Improved allocation of resources and funding to organisations that are best placed to lead, partner and implement environmental and climate strategies that impact the local region.

Theme 4: Community – vibrant, connected and sustained communities

Through the development of this plan there was a clear acknowledgment that community health and wellbeing is critical in developing resilience to disaster and that there are fundamental challenges in delivering these services to communities.

Sub-theme: Health and Mental Health services

Action	Suggested Lead	Potential Partners	Resilience capacity
• Advocate for improved access to mental health and health services that are: • Suitable for regional, rural and remote communities, • Easily accessible and in a timely manner e.g. outside usual hours, without detailed referral processes • include support to develop youth resilience and leadership skills delivery through educational services throughout all stages of life. • Includes mental health first aid training. • Includes education on resilience training and behaviour change management • That have a greater focus on preventative health care. • Working with local groups such as Salvation Army and through local organisation Monaro Farming Systems to provide mental health support. • The consortia of local council can assist in connecting local organisations with funding (grant opportunities) to support education and delivery.	Local Councils, Canberra JO	Primary Health Network and Local Health District local health providers, not for profits e.g., Rural Doctors Network, universities/ researchers, schools, mental health service providers e.g. Headspace	Absorptive, Adaptive, Transformative

Key Outcomes

- Provides more appropriate, timely and accessible services that deliver better health and mental health outcomes for the community
- Focused on promoting good general health prior to crisis, allowing individuals to operate to their full potential and opening from a more resilient starting point.
- Uses existing local networks to deliver mental health support through increased education and awareness.
- Provides greater awareness of the health resources available for communities.
- Reduces the economic cost of lost productivity associated with time spent away from work.
- Reduced instance of suicide.
- Focuses on pre-emptive measures and building resilience and leadership from a young age.
- Provides critical support where needed
- Is suitable for the needs of the communities in which they operate including isolated and vulnerable groups..
- Increases the likelihood of community groups being able to secure funding for initiatives that will support resilience on the local level and produce better environmental, economic and social outcomes for communities.

Sub-theme: Understanding and planning for the community

The communities reflected in the development of this plan identified that it was important for all members of the region to be able to build resilience and participate in activities that support the response to drought. It was observed throughout the consultation how important it is to address issues of inequity and vulnerability to improve the overall level of resilience towards droughts. Improving the understanding of who makes up our communities and responding to that need through more informed planning and delivery of services will produce better local outcomes.

Action	Suggested Lead	Potential Partners	Resilience capacity
Increase the understanding of populations within the region and their needs by: • Reviewing the governance, socioeconomic factors, demographics, language, health and disability status, housing and transport, social networks and community belonging, geographic location, environment factors and infrastructure and services. • Mapping the populations within each of the regions and using this information to inform future local planning processes and communications e.g. Drought Communication Plan.	Local Councils, Canberra JO	Community, DPIRD, universities, ABARES, consultants/advisors	Adaptive to Transformative
• Accessible and equitable access to grant writing assistance across each of the LGA's. That considers formation of partnerships with local student such as utilisation of ANU business students or existing local grant writing services.	Local Councils, Canberra JO	Business chambers, Communities, universities, RDA Southern NSW and ACT	Absorptive, Adaptive
• Continue to plan and prepare for the changing climate by continuing to develop climate adaptation strategies, resilience frameworks that will support Council working with its communities to adapt for the future. E.g. Implementation of the QPRC veg strategy, Resilience Blueprint for South East NSW and Batlow preparedness plan.	Local Councils	Landcare, LLS, local environmental groups, NSW Government, consultants and adaptation specialists, community, researchers and scientists	Adaptive

Key Outcomes

- Better understanding of the demographics of each community and region so that strategies, programs and planning are more effective and inclusive.
- Improved utilisation of existing local skills to support delivery of grant writing programs which support community investment.
- Increases the opportunities for investment (via grants) in local projects that benefit the community.

Theme 5: Infrastructure – build assets and climate adapted design

The infrastructure and facilities to support communities are vital to ensuring the regions remain a place to live, work and invest. Water infrastructure has been identified as a key enabler within this Plan. Along with ensuring the future assets are fit for the community need and adapted to the climate.

Action	Suggested Lead	Potential Partners	Resilience capacity
• Continue to maintain and develop appropriate infrastructure to support the region's communities and economy. This includes: • Asset planning to ensure council owned infrastructure and services are suitable for future climate impacts. • From the early mapping of communities and asset vulnerabilities incorporate this information into the planning process to focus on investing in vulnerable assets and communities.	Local Councils	Canberra Joint Organisation, DPIRD	Adaptive, Transformative
• Continue to work with partners to improve housing design and landscape requirements that includes energy and water efficiency design with respect to new housing developments, • Council seeks to incorporate efficient designs into planning eg heat refuges, landscaping guidelines, minimum energy standards.	Local Councils, Canberra JO	Developers, Architects and building designers, NSW Government, consultants and adaptation specialists, community, researchers and scientists,	Transformative

Action	Suggested Lead	Potential Partners	Resilience capacity
Continue to work with state agencies on the investigations and implementation of: • The regional water strategies for the Murrumbidgee, Greater Sydney and NSW Murray that focus on improved water security for town water supplies, increased reliability and provide water security solutions for smaller regional centres such as Braidwood and Bungendore. The local Councils are also conducting their own investigations in water security as follows: • Yass Valley are investigating new water supplies from Burrunjuck Dam, off-river storages and ACT Water • Braidwood Water Supply Water Security Assessment which considers a range of short and long term measures including restrictions implementation to target reductions in demand. Some of the key areas that apply to this Plan include: • Local (town) water security and enduring levels of water supply along with addressing sustainable population growth pressures. • Continue to improve water management. • Public information on water availability. • Understanding of groundwater. • Natural resource management activities and river restoration.	Local Councils	NSW DCCEEW, ACT Government, Commonwealth Government, Snowy Hydro, water supply authorities WaterNSW and Icon Water	Adaptive, Transformative

Key Outcomes

- Infrastructure in place that meets current and plans for future community needs and climate impacts.
- Future design of infrastructure that recognises climate impacts.
- Increasing water security within the region will support economic development with the region and contribute to improved social and environmental outcomes.
- Identify the assets within each region that leave communities vulnerable to drought (and other disaster) if they fail/underperform and how these risks can be mitigated

5.5. Monitoring, Evaluation and Learning

To drive improved drought resilience in the region, this Plan has identified the steps required for change to meet the needs of the region. These include the identified priority and related actions to be implemented; the outcomes that could be achieved as a result and specifically how each would relate to building resilience. The Plan also includes steps required to implement the change and identifies a delivery model to do so.

To ensure this Plan delivers on the actions identified, a Monitoring, Evaluation Learning (MEL) Framework should be adopted. The FDF MEL Framework listed in Figure 37 will be used to assess the effectiveness of implementing this Plan (DAWE, 2020).

- Impact – Do the drought impacts identified in the Plan represent those of greatest impact to the region?
- Rationale – Do the current actions and those proposed in this Plan align to the strategic priorities of Social, Economic and Environmental?
- Outputs – Does the implementation of the Plan deliver the outputs detailed in this Plan?
- Outcomes – Do the benefits of implementing the actions improve resilience across the three strategic prioritises for the Southern Tablelands Councils Bordering the ACT? If not, what can be adjusted to improve the outcomes?

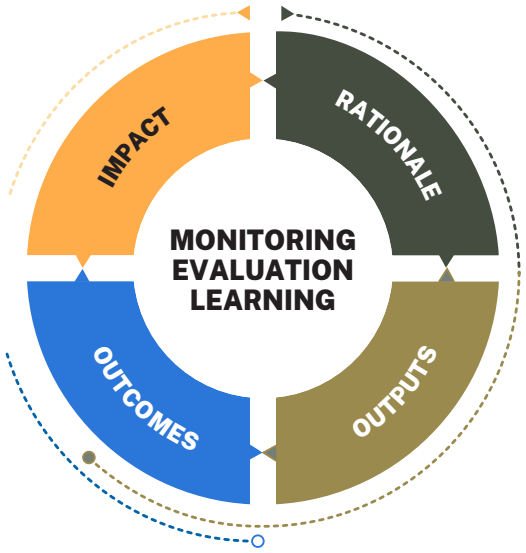


Figure 37 FDF Monitoring, Evaluation Learning Framework

The drought impacts have been identified in Section 1.7 and LGA-specific impacts are presented in the LGA snapshots. These drove the development of the actions (Section 5.2). Appendix A outlines, for each action, what strategic priorities they align to (Social, Economic, Environmental), how they build resilience, the intended outcomes, the implementation steps, parties involved, estimated magnitude of cost, timeframe for implementation, and suggested evaluation metrics.

The three Councils working together with the delivery partners including NSW State Government, not-for profit organisations, industry and community organisations will need to collaborate on the implementation of this Plan.

The Councils are the vehicle for the development of the Plans and have been nominated as the lead agency for the delivery of several actions within this Plan. This is due to both the allocation of implementation funding via the FDF and the ability of Councils to lead and advocate for the resilience needs of their communities. However, many of the initiatives will need to be delivered by other agencies as a collaborative effort.

Initial Plan measures of success have been identified for the first year of the Plan (Section 5). This establishes a starting point to measure the effectiveness and progress of each of the actions.

Where possible, metrics have been adopted from existing data and systems such as the Australian Bureau of Statistics, census data and existing reporting that could be obtained through Council. The metrics would need to be monitored and reported to establish a baseline level with future years measures of success and metrics to be identified.

Critical to regional-level monitoring of, and improvement to, the Plan, an on-going project control group comprising of the three Councils with external stakeholders as needed will be required. This group would have the role of initiating actions in line with the plan, reviewing progress against the plan objectives and overseeing implementation. The action within the plan which discusses formalising regional networks with agencies that hold drought responsibilities would also provide a good and regular opportunity to discuss the progress of this Plan.

The Plan is a snapshot in time and requires regular update to ensure the overall actions still align with the region's requirements. A short progress review should be published annually as part of the individual Councils Annual Report (as part of their Integrated Planning and Reporting processes), highlighting any issues in implementation, and reporting using the metrics described. A review and update of plan should be scheduled every 4 years. This should include community consultation to ensure the needs, actions and outcomes are still relevant and to support this Plan remaining current, embedding the plan to ensure local ownership within the communities and progressing implementation. The three Councils will continue to meet bi-annually to assess plan progress, this will provide an opportunity to reflect on how the Plan is being implemented and make any potential adjustments and refinements that need to be made. This may include inviting other stakeholders and delivery partners to provide progress updates. Aside from this, the three Councils would be involved in other implementation groups for specific actions.

Some of the key parameters assumed in the implementation of the plan include:

- Effective cooperation between delivery partners.
- Capacity of three local Councils to lead and coordinate other stakeholders.
- Capacity and engagement of other stakeholders to lead and coordinate actions where required.
- Capacity of other stakeholders and the community to participate and actively engage in implementation activities.
- The ability to record and share plan outcomes.
- The integration of this Plan with other local planning activities.
- Stakeholders' willingness to share knowledge and work with each other.
- On-going funding to support implementation of plan actions.
- The remit of delivery partners/stakeholders will not fundamentally change.
- Implementation targets past the short-term can be defined and agreed.
- That the region is not moving directly into another drought and has some lead time to commence plan activities.
- Other agencies continue to deliver drought work that is being developed as a part of this plan.
- Some of the longer-term factors that may impact plan outcomes include:
- The ability to effect meaningful and longer-term behaviour change.
- On-going funding to support larger more critical actions that traverse across political cycles.
- Legislative and regulatory change required to implement the actions.
- Regular review and update of the plan.

5.5.1. Monitoring progress and plan outcomes

Table 10 below outlines the actions alignment to the FDF MEL Framework. Additional details regarding lead agency, partners and measures of success can be found in Appendix C.

Theme	Outcome / priority	High-level indicator / metric	Timing
Theme 1 – Robust and resilient local economy and agricultural businesses **Business**	• Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. • Businesses have improved access to new and existing knowledge and technology to enable more effective responses to risks such as drought. • Businesses engage in strategic business planning and risk assessment. • Businesses better understand their resilience to drought. • Businesses have built skills in business planning, financial and risk management. • Businesses identify and adopt innovative and transformative ways to build drought resilience.	Data from service providers that captures council/business chamber as a referral partner. Metrics and KPI's within REDS and local economic development plans are met.	Short term to increase the promotion and awareness of programs. On-going and regular deliver of education to continue to embed and upskill. Medium to long term to implement REDS and refined over time as populations and needs change.
Theme 1 – Robust and resilient local economy and agricultural businesses **Agriculture**	• More primary producers adopt transformative strategies and technologies to reduce financial exposure to drought. • More primary producers preserve natural capital while also improving productivity and profitability. • More primary producers adopt whole-of-system approaches to natural resource management (NRM) to improve the natural resource base, for long-term productivity and landscape health. • New partnerships are formed to fund and undertake drought resilience RD&E. • The volume and adoption of relevant drought resilience RD&E increases. • Primary producers and businesses have improved access to new and existing knowledge and technology to enable more effective responses to risks such as drought. • More primary producers incorporate NRM philosophies and approaches in business planning and risk assessment to better manage their natural resources through drought. • More primary producers and businesses make greater use of data to better understand their farm business' level of drought resilience and make business decisions.	Metrics from extension and adoption service providers. Attendance at workshops and engagement with drought adoption officers and R&D services increases. Longer-term ABARES data demonstrate changing trends in markets and climate. RDC's research information that demonstrates improved environmental and productivity outcomes	Short-term to initiate and longer-term to deliver wider benefits.

Theme	Outcome / priority	High-level indicator / metric	Timing
Theme 1 – Robust and resilient local economy and agricultural businesses **Circular Economy**	• Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. • Communities implement transformative activities that improve their resilience to drought. • Businesses better understand their resilience to drought • Businesses identify and adopt innovative and transformative ways to build drought resilience.	Short-term expression of interest for circular hub/ opportunity to partner with existing hub. Medium investigate partnerships/funding Longer-term establishment of hub that contributes to economic diversification (regional economic data/ ABARES) and improved environmental outcomes.	Long term and on-going.
Theme 2 – Maintain and protect the natural environment	• Communities implement transformative activities that improve their resilience to drought. • More primary producers adopt transformative strategies and technologies to reduce financial exposure to drought. • More primary producers preserve natural capital while also improving productivity and profitability. • More primary producers adopt whole-of-system approaches to natural resource management (NRM) to improve the natural resource base, for long-term productivity and landscape health. • New partnerships are formed to fund and undertake drought resilience RD&E. • The volume and adoption of relevant drought resilience RD&E increases. • Primary producers and businesses have improved access to new and existing knowledge and technology to enable more effective responses to risks such as drought. • More primary producers incorporate NRM philosophies and approaches in business planning and risk assessment to better manage their natural resources through drought. • More primary producers and businesses make greater use of data to better understand their farm business' level of drought resilience and make business decisions.	Attendance at workshops/ education. Number of new collaborations that have been established. New projects that have been implemented. Measured improvements in environmental and economic outcomes.	Short to medium term (and ongoing)

Theme	Outcome / priority	High-level indicator / metric	Timing
Theme 3 – Governance: Strong leadership and collaboration	• Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. • Communities implement transformative activities that improve their resilience to drought. • Relevant and reliable climate data are available and used for decision-making. • Partnerships and engagement is built between stakeholders managing natural resources. • The number of, and participation in, local networks and programs to enhance drought resilience increases. • Communities share knowledge, collaborate and partner with government more often to build drought resilience. • Communities build their local leadership, networks and social support. • Communities proactively plan and prepare for drought, using collaboration and innovation. • Community leaders and networks have stronger capability to undertake strategic drought resilience planning.	Formalisation of meetings, Engagement of Drought Resilience Officer, Establish KPI's for role Developments of plans Visits to Councils website Council surveys/feedback	Short-term to initiate and on-going
Theme 4 – Communities that are vibrant, connected and sustained **Health and Mental Health services.**	• Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. • Communities implement transformative activities that improve their resilience to drought.	Initial consultation with delivery partners and scoping of service needs. Data from health providers supports effectiveness of new service	Medium term to scope and longer-term to establish and then on-going (adapted)
Theme 4 – Communities that are vibrant, connected and sustained. **Understanding and planning for the future**	• Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. • Communities build their local leadership, networks and social support. • Communities use best practice data and information to better understand their resilience to drought, and plan for resilience to drought.	Complete mapping/investigation into population/asset mapping. Synthesis outcomes across other planning functions. Embed continuous improvement. Existing plan metric and implementation strategies	Short-medium term to define new information and long (and ongoing) to implement and embed

Theme	Outcome / priority	High-level indicator / metric	Timing
Theme 5: Infrastructure – Built assets and climate adapted design	• Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. • Communities implement transformative activities that improve their resilience to drought. • Improved access to, and greater utilisation of community infrastructure. • Communities share knowledge, collaborate and partner with government more often to build drought resilience. • Community leaders and networks have stronger capability to undertake strategic drought resilience planning.	Progress against existing strategies.	On-going and longer term to implement.

Table 10 Initial Monitoring, Evaluation Learning (MEL) framework

06

Conclusion

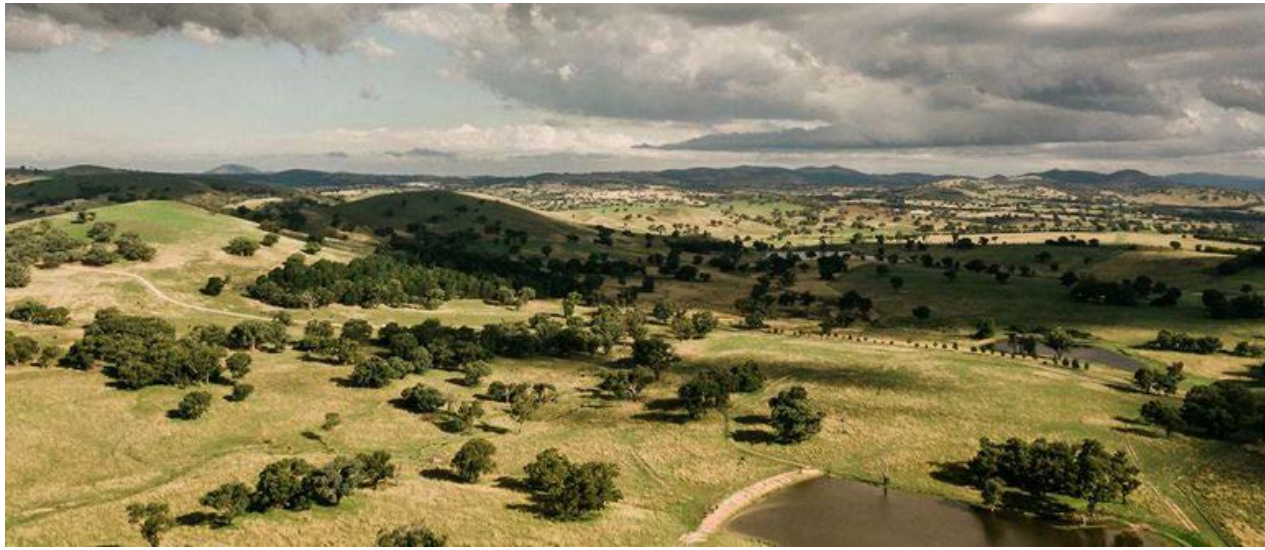
6. Conclusion

This Plan was co-designed with the communities within the region. This Plan builds on earlier efforts made by the community to improve its response to drought. Innovative and grass roots examples are showcased as to how the community has worked together to adapt and drive improved resilience.

This Plan has been designed with the three Councils being the main leader of actions to ensure the plan is actionable. The delivery of the plan will require other agencies including state government, industry, not for profit organisations and the community to be partners in the delivery of the plan.

This Plan has identified a parcel of actions that can be funded through the FDF Implementation Funding and those that will require further investigation into alternate funding options.

This Plan illustrates the key areas for the region at this point in time. These areas are not static and will require review and update continuously.



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Appendices

Appendix A

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Appendix B

What we heard

B-1 Queanbeyan Palerang LGA

What worked well

The stakeholder engagement confirmed that some of the following initiatives have supported Queanbeyan-Palerang's ability to absorb the shock of drought.

- Informal social support to support the community. This included pubs and clubs staying open for longer hours and the effective use of the community radio. Locals who took a proactive approach in looking out for neighbours and those struggling.
- The use of Braidwood Showground as a delivery station for feed. Farmers could bring livestock to the showground and the community used the location as an emergency community place.
- Local Land Services waived stock rates.
- Truck convoys were organised for stockfeed and clothes.
- Water restrictions were effective in residential areas.

What hasn't worked well

- There were insufficient mental health services available to meet the demand.
- The management of dam releases was not efficient.
- Water restrictions were too late and there needs to be better management of water trucking.
- There was a lack of communication which was enhanced by significant black spots in the region.
- Information from council was limited and not targeted.
- There were delays in government support announcements.
- There wasn't enough support for community centres to help support social connectedness.
- Water infrastructure include dams, pipelines, and water availability is not sufficient to meet the regions needs during drought.

What needs to happen / ideas?

The Queanbeyan-Palerang LGA highlighted that resilience could be improved though:

- Braidwood needs a more secure and reliable water supply that supports them through all seasonal conditions.
- Increased education campaigns on water use, native vegetation and resilience during difficult times.
- Development of a water sharing plans, which are accessible to the community and focuses on the management of water during critical events.
- A more effective communication and messaging system focused on what legislation applies and where information can be found.
- Increase local input in decision-making during droughts.
- Clear information regarding local flora that thrives in the areas.
- Greater support and education for children to become resilient to drought via schools.
- Improved water wise education programs
- Emphasis of out of the box thinking and changing the mentality to moving forward
- Empowering people to be self-reliant

B-2 Snowy-Monaro LGA

What worked well

- Businesses were able to pivot to manage reduced farm production.
- Increase in city to country engagement and farm visits.
- There was a lift in community spirit, brought on by truck convoys delivering livestock feed
- 'For a cause' marketing, such as the "buying from the bush" campaign. Made communities feel like their city counterparts cared and brought income to the region.

What hasn't worked well

- Drought initiative had a lack of cohesion across agencies.
- A lack of support for mental health.
- Engagement and consultation across the board were generally viewed as uncoordinated and fragmented.

What needs to happen / ideas?

The Snowy-Monaro LGA highlighted that resilience could be improved though:

- Improving weed management, through control and prevention.
- Implementing initiatives from Monaro Farming Systems
- Constructing a local botanic garden that would showcase how to improve soil health, support threatened species conservation and ecology, Lessons can be learnt from the Eurobodalla gardens.
- Expanding and promoting the work of Landcare
- Having a drought plan that links to basic resources and gives hope to communities.
- Increasing collaboration between drought response agencies to ensure a timely response to drought, provide resources and improve access to drought information.
- Having synergy in farming strategies in drought, aiming for increased efficiency.
- Better dialogue across industries affected by drought.
- Implementing resilience training and support that helps with adapting to change
- Developing a hub for drought and disaster assistance that provides a place to turn in drought.
- Developing mental health plans before disasters are happening.
- Implementing financial literacy training.
- Developing road infrastructure for feed and stock transport.
- Diversifying the economy to maximise labour efficiency and assisting small businesses to build diversity.
- Being adaptable in resource use.
- Reinvigorating Buy from the Bush and other similar campaigns.
- Providing financial support for subject matter experts (including DPIRD Ag, LLS) to invest in drought resilience.
- Providing workshops and education from trusted community organisations, including Landcare and Rural Fire Service.
- Promoting First Nations tourism products, including stargazing and bush tucker trails.

B-3 Yass Valley LGA Snapshot

What worked well

- Technological improvements, such as moisture probes and LLS farming forecaster
- Rural Financial Counselling Service worked well and provided great support for eligible people
- Pest control
- Alternate methods to manage stock that protect pasture and the environment, such as drought lots.
- Grassroots and local initiatives provide benefit during drought.
- Business owners are more present in their businesses.

What hasn't worked well

- Realignment of salaries in agricultural services such as LLS, and DPIRD sends the message that there is less value in the contribution these roles bring to their clients.
- Climate forecasting is not always accurate and can distort the signals it sends to livestock markets about impending events.
- Access to credit and finance can be more difficult for businesses during this time when many are looking for additional finance.
- Drought funding and support runs out or is discontinued before drought was finished.

What needs to happen / ideas?

The Yass Valley LGA highlighted that resilience could be improved though:

- Aligning political and funding cycles to increase resilience and move beyond politics.
- Implementing a Drought Preparation Strategy that devotes more resources to preparing for drought prior to it arriving.
- Reducing red tape associated with accessing emergency support measures, such as freight subsidies or infrastructure.
- Proactive education on alternate agricultural technologies and practices.
- Improving accessibility to agencies and counselling fitting in with farmer's schedules.
- Building capacity and skills in agriculturally based businesses
- Diversifying jobs and opportunities based on the region's unique location, such as energy and information services.
- Establishing relationships with agencies and people before drought and emergencies are occurring.
- Revaluating what programs/interventions/assistance already exists to find new ways and be adaptive.
- Acknowledging the need for drought resilience trained people
- Strengthening the communication channels across the community, such as better access to information including drought.
- Increasing diversity among and within businesses
- Better recognition of how drought impacts cross LGA boundaries.
- Adapting to the changing demographics and expectations of people within each community.
- Expanding bulk billing to better support access to health services.

Appendix C

Priority 1

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 1	Economic, Social	Adaptive to Transformative	• Continue to investigate diversification in the economy through the Local and Regional Economic Development Strategies and local planning processes that seek to capitalise on the unique skills, knowledge and features of each LGA. This may include opportunities to attract new industry to the region, leveraging the rail or road networks or capitalise on a community's location within each region.	• Continue to work thorough established channels with local council economic development officers and DRNSW on broader regional strategies. • Councils may choose to undertake bespoke activities such as surveys and workshops with the members of the community and local businesses to inform future development activities.	Local Councils	$$$	5–10
Theme 1	Economic, Social, Environmental	Transformative	• Investigate the opportunity to create a circular economy hub in the region like that of the Bega Circular Valley.	• Expression of interest within the region for businesses who have an interest in participating in the establishment of a circular business hub. • Depending on interest consider the formation of a circular business hub within the region. • Investigate the formation of a partnership to join the Bega circular valley or learn from them as to how to create/develop a new regional hub. • Investigate opportunities to engage existing businesses within the circular economy to share and present within the region. • This can include funding support to assist local investigation of opportunities.	The regions industry/ Local Councils	$$$	5–10

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 1	Economic, Environmental	Adaptive to Transformative	• Increase the level of education and training on new agricultural practices and technologies and environmental projects e.g. carbon farming, ag-tech. • Investigate/map existing extension services for the region and identify new potential partners such as Monaro Farming Systems or Landcare to undertake greater levels of extension and adoption. • Consider engaging organisations such as these to deliver community education on water awareness, endangered species, drought tolerant and regionally suitable plantings, development of community projects such as native nurseries and community gardens. • Utilise these existing local and regional groups to deliver mental health training too.	• Conduct a review of existing extension providers with a view of increasing services across the region that tailor the education to a region/LGA level (e.g. utilise of local services e.g. Monaro Farming Systems, LLS, RDC's, private extensions and adoption providers) to be able to provide greater levels of extension from trusted relationships.	LLS/RDC's	$$	3–4
Theme 2	Environmental, Economic	Adaptive to Transformative	• Increasing the level of research and resources available to programs that Hydrate the Landscape Initiatives (such as the Mulloon Institute). • Increasing the resources to education on how to achieve these outcomes (rebuild the landscape, boost environmental resilience, improve ecosystems and enhanced agricultural productivity via a catchment scale approach)	• Allocation of additional resources to the Mulloon Institute to expand the level of project work they are currently able to undertake on a regional level. • This may include project partners assisting with grant funding opportunities, local resourcing and project ideas, utilisation of local networks to expand the reach of such programs.	Mulloon Institute	$$	3–4

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 4	Social, Economic	Absorptive, Adaptive, Transformative	Improved access to mental health and health services that are: • Suitable for regional, rural and remote communities • Easily accessible and in a timely manner e.g. outside usual hours, without detailed referral processes • Include support to develop youth resilience and leadership skills delivery through educational services throughout all stages of life • Includes mental health first aid training • Includes education on resilience training and behaviour change management • That have a greater focus on preventative care • Utilise various delivery models and provide education/training for volunteer groups such as Salvation Army.	• Consultation and engagement with delivery partners would be required in conjunction with reviewing literature on what is already known about the needs of regional, rural and remote communities. This should identify the health and mental health services required that meet the needs of the community. The service package would then require additional funding to implement. • As a shorter-term opportunity local councils can assist community groups to access resilience, leadership and mental health training through support with accessing grant opportunities.	Primary Health Network and Local Health District	$$$	5–10
Theme 4	Social, Economic	Adaptive to Transformative	Increase the understanding of populations within the region and their needs by: • Reviewing the governance, socioeconomic factors, demographics, language, health and disability status, housing and transport, social networks and community belonging, geographic location, environment factors and infrastructure and services. • Mapping the populations within each of the regions. • Using this information to inform future local planning processes and communications e.g. Drought (Disaster) Communication Plan.	• Councils should consider engaging support to help map and understand the demographics of their communities. • This would be undertaken via a range of activities from reviewing existing literature, surveys, workshops, ABARES data. • These outputs should then be used to input and inform all other planning processes and engagement/ communication conducted by Councils to ensure information is reaching all parts of the community and is addressing the areas of greatest need.	Local Councils, Canberra Region JO	$$	3–4

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 4	Environmental	Adaptive	• Continue to plan and prepare for the changing climate by continuing to develop climate adaptation strategies, resilience frameworks that will support Council working with its communities to adapt. E.g. Implementation of the QPRC veg strategy and NSW Resilience Blueprint for Southern NSW.	• Continue to develop and implement strategies that assist both Local Councils and the community to adapt to changing climate conditions and build resilience. • Assessing risks to population and assets • Identify options as to how to mitigate these risks • Consider including sustainable initiatives, local planning controls, collaboration with other organisations and education and demonstration along with capacity building to embed this thinking in councils.	Local Councils/ Canberra Region JO	$$	1–2
Theme 5	Environmental, Social, Economic	Adaptive, Transformative	Maintain and develop appropriate infrastructure to support the region's communities and economy. This includes: • Asset planning to ensure council owned infrastructure and services are suitable for future climate impacts. • From the early mapping of communities and asset vulnerabilities incorporate this information into the planning process.	• Complimentary to the earlier action that details the mapping and understanding of groups within the community. Is the assessment of the vulnerability of the regions infrastructure. To define which assets make the communities more prone to the impacts of disaster. Upon assessment of the regions assets, assessment should be made as to how to mitigate these risks in the current infrastructure and a roadmap for how to transition/plan improved climate adapted infrastructure.	Local Councils	$$	5–10

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 5	Environmental, Social, Economic	Adaptive, Transformative	Continue the investigations and implementation of: • The regional water strategies for the Murrumbidgee, Greater Sydney and NSW Murray that focus on improved water security for town water supplies, increased reliability and provide water security solutions for smaller regional centres such as Braidwood that factor in regional population and industry growth. Some of the key areas that apply to this plan include: • Local (town) water security and enduring levels of water supply along with addressing sustainable population growth pressures. • Continue to improve water management. • Public information on water availability. • Understanding of groundwater. • Natural resource management activities and river restoration.	• NSW DCCEEW continue to implement regional water strategies with partner agencies. • This may include local councils undertaking bespoke investigations that more directly inform their individual water security needs.	Canberra Region JO/Local Councils	$$$	5–10

Priority 2

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 1	Economic, Social	Adaptive	• Increase the awareness of farm succession planning for agricultural businesses. So, there is a clear pathway of transition for new farmers taking over the responsibility and management of an agricultural business	• Existing service providers already exist to deliver such advice and assistance. • Increasing the promotion and awareness of these resources and advocate for subsidisation. • Discuss with local financial institutions/ accountants and RFCS how to embed these requirements into financial approvals.	DPIRD	$	1–2
Theme 1	Economic	Absorptive to Adaptive	Increase the support for smaller regional businesses by: • Increasing access to and promoting the awareness of business management programs that build skills in financial understanding, budgets, gross margins, cashflow along with developing digital skills and how to start a new business e.g. Agri-tourism. This could include hosting training to build digital skills to allow business owners to develop online platforms for their businesses. • Increasing the utilisation of Business Chambers to create opportunities for likeminded people in business to meet, discuss opportunities and build capacity and skills. • Fast-track and sponsor retraining opportunities for those within the region who are displaced due to drought.	• Local councils and the Business Chambers to promote the training and education opportunities available, through engagement with local service providers. • Advocate for subsidies to training to improve uptake and highlight grant opportunities for local businesses to obtain funding to support program delivery. • Consider a variety of methods to deliver the training that meet the needs of participants e.g. online, afterhours, group workshops etc • This may include council hosting a series of digital skills workshops for small business. • Local Councils and Business Chambers can work together to identify opportunities to collaborate to sponsor and deliver local retraining opportunities.	Local Councils	$$	1–2

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 1	Economic, Social	Absorptive to Adaptive	• Increase the promotion and awareness of the distinctive tourist attractions of each of the LGA's • Investigating opportunities to recreate the impact of the Buy from the Bush campaign on a regional scale. • Investigate the formation of strategic partnerships where local businesses work together to support local and benefit the community e.g. businesses stocking and promoting local produce and each other. • Increase collaboration with First Nations Peoples in the region to develop and promote bespoke tourism and employment opportunities.	• Developing a tourism progress plan that documents the key tourism and retail opportunities in each of the LGA's. This plan should seek inputs from the local business, tourism and First Nations communities on potential collaborators and interested parties. Documents the key actions and activities and discuss local resources that will support and deliver the plans actions. • Local Councils may look to engage assistance to develop and document the plan.	Local Councils/ Business Chambers	$$	1–2

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 2	Environmental, Economic, Social	Adaptive	Investigate opportunities within the local region to improve the co-ordination, information sharing, and collaboration of work being conducted by various agencies including but limited to: Landcare network, LLS, DPI, RDC's, Local Councils, not for profit organisations across the region such as Monaro Farming Systems. • Develop an enduring relationship that provides regular opportunities for agencies to meet and discuss prospects to work together, share information, consider programs, policies and projects to ensure consistency and alignment with actions. • Showcasing projects and organisations such as (but not limited to) Monaro Farming Systems that act as a model for innovative primary producers that could be adopted in other regions and the Botanic Gardens at Eurobodalla as a conservation organisation that has focused on soil health, threatened species, ecology and tourism. Upper Shoalhaven Landcare Council (USLC) has funded a study of the district which identifies the species of flora required and alerts the district to the need for action. • Support improved collaboration between agencies and organisations to ensure strategies and plans that focus on environmental and climate change outcomes are aligned and not duplicated and resources are appropriately allocated to where they are best used e.g. How does the QPRC: Keeping it Cool Vegetation and Heat Adaptation Strategy align with other work being conducted by NSW Government agencies, Landcare.	• Utilise independent party to review the roles/responsibilities of various organisations in conjunction with resources and funding to determine where capacity and skills are allocated and can be best utilised to deliver complimentary projects. • Formalise a regular meeting of identified agencies on a local/ regional level to discuss collaboration opportunities. These meetings may include field trips/showcases and demonstrations to present new and innovative projects.	LLS	$	3–4

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 2	Environmental, Economic	Adaptive	• Increasing the support and resources for pest control and weed management in both farming businesses and the broader environment.	• Review of existing local extension and adoption providers to identify capacity to increase local service offering agricultural businesses. • Consideration for alternate workforces such as those undertaking community service obligations who may be able to support broader weed and pest management activities within the region.	LLS/DPIRD	$$	1–2
Theme 2	Environmental, Social	Absorptive to Adaptive	Increase and provide regular education and awareness on: • Planting of drought tolerant trees, plants and lawns on a regular and reoccurring basis. • Climate education e.g. 'Being Heatwave Ready' Upper Shoalhaven Landcare Council. • Councils could consider a dedicated area to demonstrate initiatives. • Waterwise messages should be year-round and targeted across the community including schools. • Seek local partnerships to deliver this training and education.	• Local Councils to identify to plan for annual opportunities to deliver education and awareness around initiatives such as National Water Week and Biodiversity month, this plan should also include information on strategies for climate change and adaptation. • Run an expression of interest locally to see what organisations may be able to support Council's delivery of these actions. • In forming these partnerships consider the most engaging ways to deliver the education e.g. demonstrate what a drought tolerant garden looks like and how to best promote the offerings.	Local Council	$$	1–2

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 3 	Social, Economic	Adaptive	Investigate opportunities to engage a Disaster (Drought) Officer within each council that holds responsibility as follows: • Acts as councils point of contact to disseminate drought information to the broader community. • This would include maintaining a directory on councils' website of organisations that provide information relating to drought e.g. Bureau of Meteorology, DPI Agriculture. • Acts as a connector of people and information and provides reference to agencies that provide drought services. • Develops a Drought Management and Drought (Disaster) Communications Plan which details: • The when, what, where, how and who Council will respond under drought conditions. • The agencies that have responsibility for certain areas in drought (disaster). • What council is responsible for a how it will go about communicating these messages. • What options/assistance council can offer during drought • Any changes to services and infrastructure that will impact the community. • How water resources are managed. • Where to go if you need assistance or more information.	• Investigate and advocate for additional local resources that can act a Councils point of contact for disaster and other events. • This role be best resourced by a local person within the community who can build relationships, connect people and translate and promote climate data through a local lens to help improve drought preparedness. • Work with agencies such as the Australian Climate Service to obtain up to date data and predictions and interpret these for local conditions. • Work with other agencies to bring the council/community voice to drought and disaster.	Local Councils	$$	1–2

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 3	Social, Economic	Absorptive to Adaptive	• Formalisation of agency networks that hold responsibilities for drought (and disaster management). • This will enable early warning of changing climatic and changes in resilience conditions e.g. declining spending	• Key agencies meet regularly to discuss roles and responsibilities and any changes or new information that may indicate emerging or early warning of drought, and other natural disasters. • Formalisation of the structure will enhance the effectiveness of the network and allow resources to be directed to areas of emerging need.	LLS	$$	1–2
Theme 5	Environmental, Social, Economic	Transformative	• Advocate for improved housing design and landscape requirements that includes energy and water efficiency design with respect to new housing developments, • Council seeks to incorporate efficient designs into planning e.g. heat refuges, landscaping guidelines, minimum energy standards.	• Advocate for improved water and energy efficient design in housing through existing channels to state and commonwealth governments. • Work with developers to instil more climate resilient infrastructure in new housing estates. • Consider how Local Environmental Plans and Development Control Plans can be amended to require improved standards. • Showcasing council demonstrations of energy efficient/sustainably designed projects.	Local Councils	$$	3–4

Priority 3

RDRP Themes	System	Resilience capacity building	Action	Implementation steps	Suggested Lead	Cost	Timeframe
Theme 2 	Environmental, Economic	Absorptive to Adaptive	• Increased education and, awareness for both water licence holders and the broader community on water management, groundwater and surface water.	• Local Councils to collaborate with NSW water agencies to consider additional education activities in the region where appropriate. This may include NRAR hosting local information/education sessions when they are in the area.	Local Councils	$	1–2
Theme 3 	Economic, Social	Absorptive	• Advocate for a simplification in the approval process to access drought funding. To ensure critical assistance is timelier.	• Use existing advocacy channels to support and promote the needs for easier access to drought services.	NSW Farmers Association	$	1–2
Theme 4 	Social, Economic	Absorptive, Adaptive	• Accessible and equitable access to grant writing assistance across each of the LGA's. That considers alternate workforce models to deliver such support such as utilisation of ANU business students and other local professionals.	• Local council and business chambers to work together to identify alternate workforce options that could be considered to address the grant writing inequity. This could include forming a partnership with Universities to utilise business students to assist with grant writing, working with business chambers to secure grant funding for a grant writer that sits within the business chamber and provides local support.	Local Councils	$	1–2

Key:

Themes:		Cost:		Timeframe:	
	Theme 1 Economy: Robust and resilient local economies and agricultural businesses	$	Can be supported by existing resources from Stakeholders and Partners		Short term: 1-2 years
	Theme 2 Environment: Protection of the Natural Environment	$$	Additional Resources Required (resources and financial)		Medium term: 3-4 years
	Theme 3 Governance: Strong leadership and Collaboration	$$$	Significant additional financial support required to deliver		Long term: 5-10 years
	Theme 4 Community: Vibrant, connected, and sustained communities				
	Theme 5 Infrastructure: Built assets and climate adapted design				

Regional Drought Resilience Planning

The Regional Drought Resilience Planning Program is being delivered with joint funding from the Australian Government's Future Drought Fund and the NSW Government.

The Regional Drought Resilience Planning Program provides support to identified Local Government Areas in NSW to develop drought resilience plans that can be implemented by councils and their communities.

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