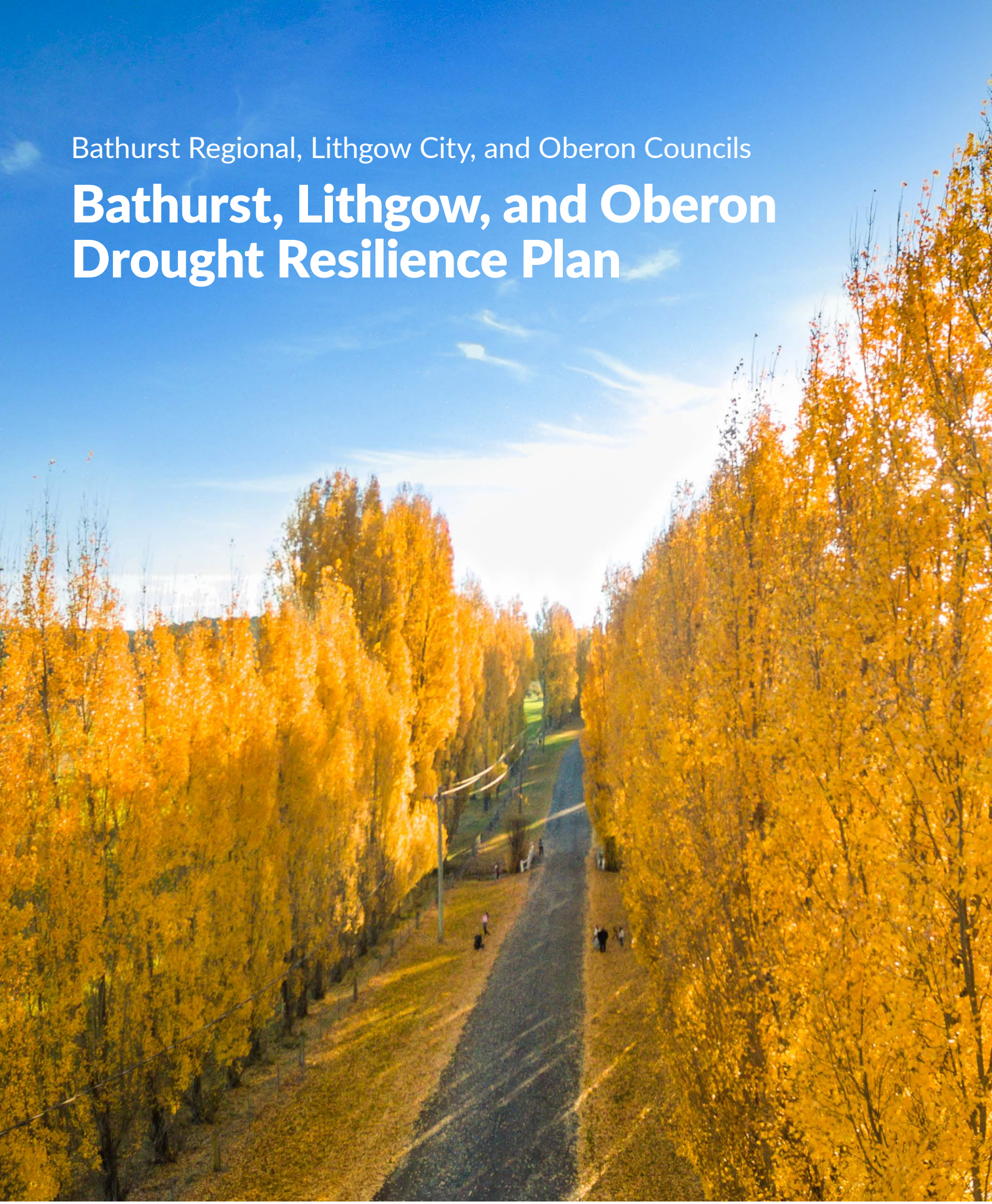
Bathurst Regional, Lithgow City, and Oberon Councils

Bathurst, Lithgow, and Oberon Drought Resilience Plan



BATHURST REGIONAL COUNCIL

Lithgow CITY COUNCIL

OBERON COUNCIL

Acknowledgement of Country

Bathurst Regional, Lithgow City, and Oberon Councils acknowledge the Wiradjuri Nation as the original custodians of the Local Government Area. We recognise their continued connection to Country, land, rivers, waters, and community, and pay respect to Elders past and present. The Councils extend our respect to all other First Nations People and to our neighbouring nations.

Contact

Bathurst Regional Council

158 Russell Street
PMB 17
Bathurst NSW 2795

Phone (02) 6333 6111

E. council@bathurst.nsw.gov.au
www.bathurst.nsw.gov.au

Lithgow City Council

180 Mort Street
PO Box 19
Lithgow NSW 2790

Phone (02) 6354 9999

E. council@lithgow.nsw.gov.au
www.council.lithgow.com

Oberon Council

137 - 139 Oberon Street
PO Box 84
Oberon, NSW 2787

Phone (02) 6329 8100

E. council@oberon.nsw.gov.au
www.oberon.nsw.gov.au

Contents

A Letter From the Mayors

Bathurst Regional Council

Our region has been affected by severe drought in recent years and our city came very close to running out of water in 2020. It is something I never want our community to experience again and is the reason why work is continuing to enhance our water supply.

Part of this work involves the Regional Drought Resilience Plan which involves Bathurst collaborating with Lithgow City Council and Oberon Council. The plan identifies our region's priorities and provides a roadmap of actions to help prepare and act early to respond to future drought risks, reducing the impact on people, the environment, and the economy. The objective of the plan is to come up with practical solutions for addressing gaps in the way we prepare for and respond to drought.

It is important that we mitigate the impact of future droughts to ensure our city has a secure and reliable water supply.

The Regional Drought Resilience Planning program is jointly funded by the Australian Government and the NSW Government under the Future Drought Fund.

Jess Jennings
Mayor – Bathurst Regional Council

Lithgow City Council

Lithgow City Council is pleased to have been involved in the development of a Regional Drought Resilience Plan, in partnership with Oberon and Bathurst Regional Councils. The Council is also very appreciative of the support given to us by the Australian Government and the NSW Government under the Future Drought Fund.

During the last drought our waterways, landscapes, native flora and fauna and farming lands suffered dramatically. Council entered a period of restrictions limiting the availability of water to residents and primary producers. Council has since undertaken works to address water security as part of its strategic planning by preparing its Integrated Water Cycle Management Strategy and investigating the potential for a new Clarence to Wallerawang pipeline project.

I have been involved with farming all my life and know the significant strain that occurs when we experience drought. Unfortunately, drought is again developing across the region and becoming more challenging for our communities. The mental health of farming families and business owners, who directly or indirectly rely upon their businesses surviving through dry periods, is becoming increasingly difficult and may become especially more so with the forecast of a worsening drought ahead. Fodder and fuel are possibly now the most expensive ever seen, with both these commodities necessary to survive on the land. I hope when you read this message that we will already have had some very welcome rain. This will ease the ongoing stress of living on the land, and flow on to effected businesses and residents.

Life is short, so do not be too hard on yourself. Seek support if you need it. Talk to friends, mates, and family. The health of our society, economy, environment, and personal selves is everything, and this Regional Drought Resilience Plan has been designed to help maintain the health of each.

Maree Statham
Mayor – Lithgow City Council

Oberon Council

This project is the first step in managing drought across our whole community.

This project has been facilitated by the Council, but the ideas have been generated within the community and actions are owned and implemented by the community.

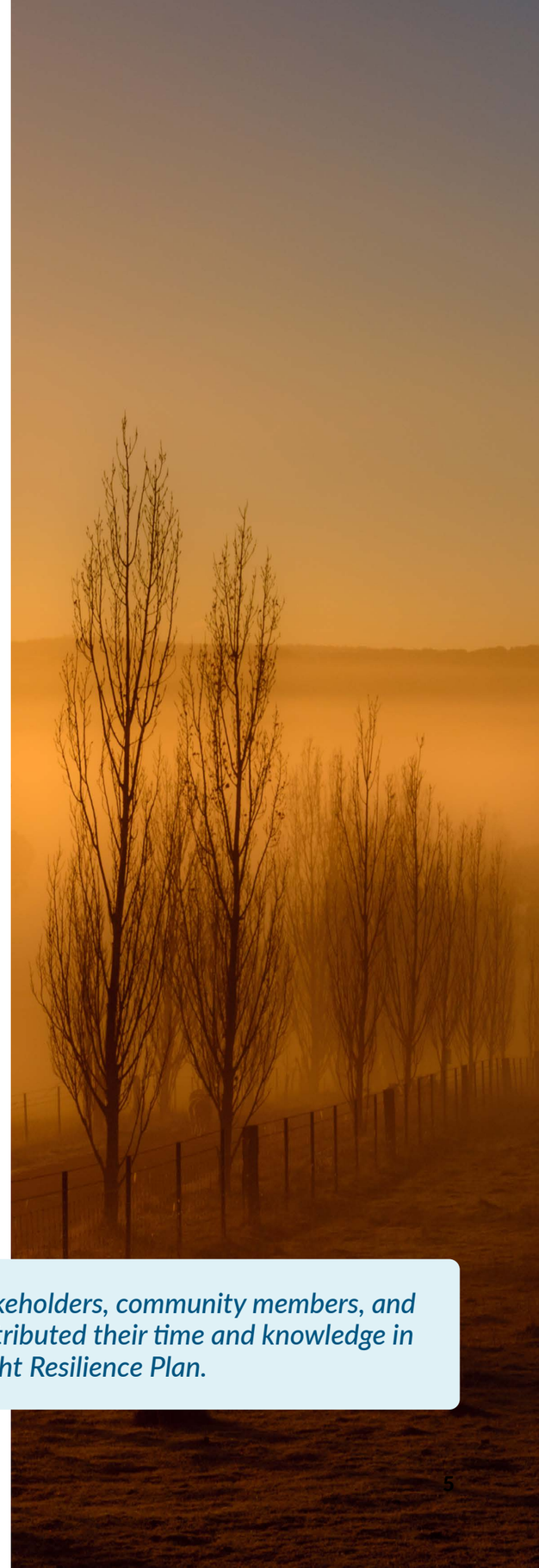
This project has the potential to improve outcomes through drought years for both farm and town-based businesses, supporting economic growth, social cohesion and community and personal wellbeing.

The actions will require collaboration across service providers in our LGA and region and clear identification of existing services and possible areas of need.

This is the beginning. The plan will need review and updating to retain relevance as climatic, social, and economic circumstances change.

Long term, the plan has the potential to create a more resilient community.

Clr Mark Kellam
Mayor - Oberon Council



We would like to thank all partners, stakeholders, community members, and organisations who have generously contributed their time and knowledge in the development of this Regional Drought Resilience Plan.

Key Abbreviations

%	Percentage
°C	Degrees Celsius
ABS	Australian Bureau of Statistics
BLO	Bathurst, Lithgow, Oberon
BoM	Bureau of Meteorology
BRC	Bathurst Regional Council
CDI	Combined Drought Indicator
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DPI	Department of Primary Industries
e.g.,	For example,
EDIS	Enhanced Drought Information System
FAQs	Frequently Asked Questions
FDF	Future Drought Fund
FFDI	Forest Fire Danger Index
GRP	Gross Regional Product
GVA	Gross Value Add
IAP2	International Association of Public Participation
IPCC	Intergovernmental Panel on Climate Change
IPR	Integrated Planning and Reporting
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
JO	Joint Organisation
LCC	Lithgow City Council
LGA	Local Government Area
LLS	Local Land Services
LOTE	Languages Other Than English
MCA	Multi-Criteria Assessment
MEL	Monitoring, Evaluation, and Learning
MIS	Management Information System
NSW	New South Wales
OC	Oberon Council
PCG	Project Control Group
RAMHP	Rural Adversity Mental Health Program
RAPTA	Resilience, Adaptation Pathways and Transformation Approach
RCP	Representative Concentration Pathway
RDR Plan	Regional Drought Resilience Plan
RDRP	Regional Drought Resilience Planning
REDS	Regional Economic Development Strategy
RFCS	Rural Financial Counselling Service
RFQ	Request For Quote
SAP	Special Activation Precinct
SDG	Sustainable Development Goal(s)
SOW	Scope of Works

Glossary of Key Terms

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.[1]

Adaptive capacity

The ability of individuals and groups to adjust and respond to environmental and socioeconomic changes.[2]

Adaptive governance

Adaptive governance is defined by a focus on decentralised decision-making structures and procedurally rational policy, supported by intensive natural and social science. Decentralised decision-making structures allow a large, complex problem like global climate change to be factored into many smaller problems, each more tractable for policy and scientific purposes.[3]

Blue-sky thinking

Brainstorming without limits or being grounded in reality, opening possibilities for creativity without practical constraints.

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.

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.[4]

Economic resilience

The ability of the economy to absorb the economic impact of shocks and stressors without changing the economic status or outcomes.[5]

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.[6]

Feedback loop

Feedback loop is a process where the output of a system is fed back into the input, resulting in circular cause and effect that can either amplify or diminish the effects of droughts. It is used to visualise the interdependencies and interrelations of causes and effects across different systems.[7]

Green drought

Green droughts refer to instances when vegetation retains a green top, but growth is stunted and soil moisture stress has been impacted for over a month.[8]

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.[9]

Local knowledge

Local knowledge and First Nations knowledge incorporate 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.

Glossary of Key Terms *continued*

Resilience

The ability of a system to absorb a disturbance and reorganise so as to maintain the existing functions, structure, and feedbacks.[10] Also see general resilience, specified resilience, economic resilience, environmental resilience, and social resilience.

Risk

The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems.[11]

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.[12]

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.[13]

Standardised Precipitation Index

A simple measure of drought (and also of very wet conditions) and is based solely on the accumulated precipitation for a given time period (e.g. over the last 30 or 60 days), compared with the long-term average precipitation for that period.

Stressor

An event that occurs gradually over a timeframe that causes an adverse effect, e.g., drought.[14]

Systems

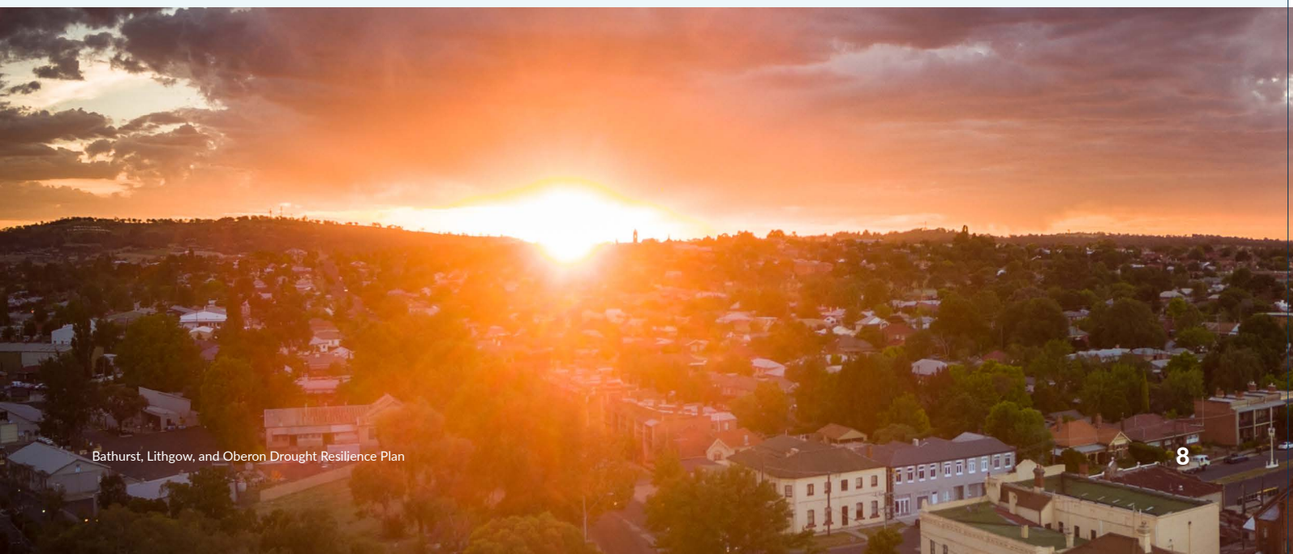
The interaction of processes, networks, and inter-dependencies across a complex 'whole'.

Trends

Major global or regional influences that have driven change in the past and are expected to shape change into the future.[15]

Vulnerability

The propensity or predisposition to be adversely affected.[16]



01

Introduction

Drought is omnipresent and affects a larger proportion of the world-wide population than any other natural disasters. Future droughts are notoriously difficult to predict, resulting from a lack of understanding of contributing physical factors, including those of climate change. Droughts can be differentiated from other natural hazards by their lack of warning as to duration, severity, and extent of a drought event. Droughts are a chronic stress with no distinct beginning or set tipping point, meaning the opportunity for implementing and adaptation is often missed. This makes actions historically reactive rather than proactive.

Over the years, the frequency and intensity of drought events have significantly increased, affecting communities and economies in ways extending far beyond the immediate impact on major industries, such as agriculture. While drought may be historically hidden from wider society's view, largely seen, and felt as an "on-farm" issue, its ripple effects span across various sectors—from water supply to energy production, public health, to local businesses. Given this broad scope, an inclusive, cross-sectoral approach is essential for enhancing resilience towards the increasing threat of drought.

The Regional Drought Resilience Plan (RDR Plan) aims to shift the focus and paradigm to encapsulate a 'whole-of-community' and 'whole-of-economy' perspective. The objective is to encourage behavioural and cultural shifts to foster a collective awareness and understanding of shared responsibility surrounding drought resilience. By adopting this inclusive strategy, the RDR Plan positions itself as a comprehensive roadmap that outlines context and community-driven strategies, and actionable plans to equip regions with the tools they need to plan for, respond to and recover from drought impacts effectively. This document is tailored to the Bathurst, Lithgow, and Oberon (BLO) region, and serves as part of a suite of guidance documents that aim to provide stakeholders with the knowledge and tools to support the building of drought-resilient communities and economies.
This RDR Plan serves as a living document, which will be reviewed and updated through active learning and adaptive governance as conditions change, and as our community's understanding of their own drought vulnerability improves in tandem with the changing drought resilience needs of our community.

Local Government Areas

Bathurst

Traditional Owners:
Wiradjuri

Townships:
Bathurst, Perthville, Eglinton

Area:
3,820 km²

Population:
43,567 people
(21,857 male, 21,705 female)

Lithgow

Traditional Owners:
Wiradjuri

Townships:
Lithgow, Wallerawang, Portland

Area:
4,512 km²

Population:
20,842 people
(10,529 male, 10,313 female)

Oberon

Traditional Owners:
Wiradjuri, Dharug, Gundungurra

Townships:
Oberon

Area:
3,659 km²

Population:
5,580 people
(2,915 male, 2,662 female)

Vision, Goals, and Outcomes

Vision

For Bathurst Regional, Lithgow City, and Oberon Councils, drought resilience means thriving despite ongoing water adversity. The region recognises its reliance on water and prioritises water security. Our region is welcoming, valuing education, and deeply aware of drought challenges. Equipped with knowledge and tools, the region navigates dry times, remaining connected and prosperous across economic, environmental, and social fronts. Together, the region stands united, turning today's adversity into tomorrow's strength.

Economic Strategic Priorities

Ensure our communities have the skills and tools they need to remain resilient and financially stable in a changing world.

Environmental Strategic Priorities

Promote environmentally conscious behaviours in community, business and industry that protect our unique natural assets to ensure they remain resilient for future generations.

Social Strategic Priorities

Fortify our existing social capital and attract a diversity of people to our region to ensure we remain mental and socially resilient during times of hardship.

Economic Resilience

- **Enhance** education on drought resilience and sustainable business practices.
- **Promote** awareness of and support for the application of available financial support and planning,
- **Facilitate** improved opportunities for education and upskilling to cater to the needs of the region.
- **Provide** financial support and services aligned with the specific needs of our community.
- **Promote** networking and collaboration among local industries and businesses.

Environmental Resilience

- **Protect** and build climate resilience in our natural assets.
- **Establish** harmonious coexistence with the natural and agricultural environment, with limited aesthetic value lost.
- **Promote** sustainable and regenerative farming practices.
- **Maintain** water availability despite ongoing restrictions.
- **Ensure** efficient water management and resilient infrastructure in times of drought.

Social Resilience

- **Strengthen** community connections to provide support during times of adversity.
- **Build** the capacity of individuals, community groups, and services to take ownership of drought resilience.
- **Provide** accessible training and capacity building tailored towards drought resilience.
- **Promote** honesty regarding mental health and community wellbeing during times of adversity.
- **Enhance** local and timely mental health support services across our region.
- **Encourage** visitation and relocation to the region.

Long Term Outcomes

- There is a common understanding and a shared vision in the region to manage drought risks and build community drought resilience.
- The region works collectively and in partnerships to build drought resilience across three main pillars.
- Measures are implemented to limit impacts of drought and better respond to drought.
- Stakeholders and communities actively share knowledge and take actions contributing towards drought resilience.

02

Drought Resilience at a Glance

In simple terms, drought means acute water shortage. According to the Bureau of Meteorology (BoM), drought is a prolonged, abnormally dry period when the amount of available water is insufficient to meet our normal use.[17]

However, no universal definition of drought exists, meaning it is difficult to understand drought characteristics across time and space (see Figure 2.1 below for different types of droughts and their definition). Droughts can be exacerbated by low soil moisture, a low water table, and high rates of evaporation. They can be as short as a single season; however, 'megadroughts' can persist for decades (more than 30 years).[18] Droughts are a feature of all climates and are defined based on the long-term average climate of a given region. Droughts will have different prevailing effects depending on the system being analysed including social, environmental, meteorological, and hydrological.

Figure 2.1: Types of droughts and their definition.[19]

Type of Drought	Description
Meteorological	A period of months or years with no precipitation or climatological water balance rain. It is often accompanied by above average temperatures and precedes and causes other types of droughts. The climate change projects for droughts in Australia are based on a measure of meteorological drought - the Standardised Precipitation Index. Meteorological drought is caused by persistent changes in weather patterns, often triggered by irregular sea surface temperatures. Localised conditions such as reduced evaporation and low humidity due to dry soils and high air temperatures often enhance atmospheric conditions.
Soil moisture (agricultural)	A period of reduced soil moisture resulting from below average rainfall, less frequent rain events, or above normal evaporation, impacting particularly on agricultural systems.
Hydrological	When river flows and water storages in aquifers, lakes, or reservoirs fall below long-term levels. Hydrological drought develops more slowly because it involves stored water that is depleted but not replenished.
Socioeconomic	A measure of drought that considers the supply and demand of economic goods (e.g., water, lucerne hay) with elements of meteorological, hydrological, and agricultural drought. This is different from the three other drought types as it measures the implications of drought on the supply and demand of goods and the associated impacts to society.

Droughts have always been part of the region's history. In fact, severe drought affects some parts of Australia on average, once every 18 years.[20] This is expected to worsen according to the current climate change trajectory with drought expected to increase in frequency, intensity, and duration.[21] For the BLO Region, climate projections indicate similar changes across the landscape. Climate projections for the Region are shown in Table 5.4.

Persistent drought is likely to cause a shift in the relationship between communities and the land they live on, forcing them to re-configure their living standards to accommodate the reality of lower water availability. The economic, social, and environmental impacts of drought can be far reaching and interconnected. Water-reliant industries like agriculture may see drastic shifts in productivity and even face the prospect of relocating or closing down entirely. Deterioration of natural landscapes and waterways can impact tourism and visitation. Drought can impact human and environmental health in many ways including poorer drinking water quality, an indicator of poor river health, in turn causing increased rates of illness in residents. Similarly, economic decline from drought impacted industries can cause financial stress and perverse mental health outcomes.

For the BLO region, some experiences of drought have been documented over the past 50 years. Drought contributed to the severity of the 2019-20 bushfires which had a significant regional impact, with most severe effects in Oberon Local Government Area (LGA). 731km^2 of land was burnt, which led to direct impacts to the visitor economy due to damage to the region's national parks and state forests. Other industries were impacted including forestry, with damage to plantations and loss of 2020 vintage for boutique vineyards (with both wine and grapes tainted with smoke).[22] The social impacts of drought, such as poor mental health and reduced social cohesion, have also been felt across regional New South Wales (NSW). With the region experiencing an ageing population, the impacts of drought are likely to result in more severe consequences such as health impacts and isolation. This is combined with an already stretched hospital system.

In 2020, The Australian Government established the Future Drought Fund (FDF) to provide secure, continuous funding for drought resilience initiatives. Through the FDF, the Australian Government is working with state and territory governments to support regions in developing RDR Plans to prepare for and manage future drought risks.

This RDR Plan uses desktop research and community feedback gained through a series of engagement sessions, to set out seven actions to strengthen the region's drought resilience. The actions within this RDR Plan are intended to support the community to prepare for and mange future drought risks, responding to the challenges and opportunities within the region, as highlighted by the community.

The Process Overview

Figure 2.2 Bathurst Regional, Lithgow City, and Oberon Councils RDR Plan Process at a glance

Project Inception

- Planning
- Engagement with Experts
- Establishment of PCG
  - Department of Regional NSW
  - Bathurst Regional Council
  - Lithgow City Council
  - Oberon Council

Resilience Assessment

- Resilience Diagnostic
  1. Describing the System
  2. Exploring Scenarios
  3. Analysing the System

Economic and social characteristics of the Bathurst, Lithgow & Oberon areas and the historical impacts of drought to each

- Future Drought Projections
- Local Plans & Strategies
- Opportunities & Challenges

Scaled Consultation

- Stakeholder & Community Engagement
  1. Scoping and Goal Setting
  2. Stakeholder Mapping and Engagement
  3. Surveys

- Workshops
- Engagement Activities
- Interviews & Street Talks

Synthesis and Reporting

- Sequencing & Implementing Pathways
  - Regional Drought Resilience Plan
  - Monitoring, Evaluation & Learning
  - Vision & Goals
    - Economy
    - Environment
    - Society
  - Outcomes

03

A Plan for Drought Resilience

Of all the climate and weather-related conditions that affect Australia, drought is often the most challenging. NSW is prone to periods of persistent drought with downward trends in rainfall and streamflow documented.

Drought is a defining feature of the climatic cycle of the Australian landscape. In 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.[23]

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. Droughts are challenging times, not just at the farm gate but for 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.

The most effective response to rising uncertainty is to plan for greater drought resilience. This can be achieved by building sustainable and diverse regional economies, reducing the vulnerability of communities to changing economic conditions and accelerating recovery, as well as enhancing thriving natural environments. The Regional Drought Resilience Planning (RDRP) program is one of the five focus areas of the Commonwealth Government's FDF. These plans focus on innovative ways to build regional drought resilience, taking steps to plan now 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.

Objectives

Consistent with the strategic priorities and objectives of the FDF Agreement, the objectives of the RDR Plan process are to:

+ grow self-reliance and performance of the agricultural sector.
+ improve the natural capital of agricultural landscapes for better environmental outcomes.
+ strengthen the wellbeing and social capital of rural, regional, and remote communities.

Strong community and diverse regional economies are core objectives of the NSW Government, providing both short- and long-term opportunities to strengthen regional drought resilience.

As such, the objectives of this RDR Plan will reflect the intent of the FDF Agreement, addressing the drought resilience needs of our own community. Ultimately, the objectives of the Plan are to address the challenges of the community in the face of drought and leverage the opportunities available to improve community resilience to drought. These challenges and opportunities (Figure 3.1 below) are informed by community voices obtained during our engagement program, and background research of the region.

Figure 3.1: Key Challenges and Opportunities within the Region.

Challenges

+ Water-reliant landscapes and industries
+ Ageing population and culturally diverse populations
+ Attracting and retaining employees within the region
+ Lack of contextual drought impact awareness and water efficient practices (for existing and new residents)
+ Compounding regional and national natural disasters and events impacting mental health
+ Inadequate communication methods tailored to the needs of the community
+ Lack of localised, affordable, and available support services
+ Declining volunteer populations
+ Water security and water quality, including surface water reliance

Opportunities

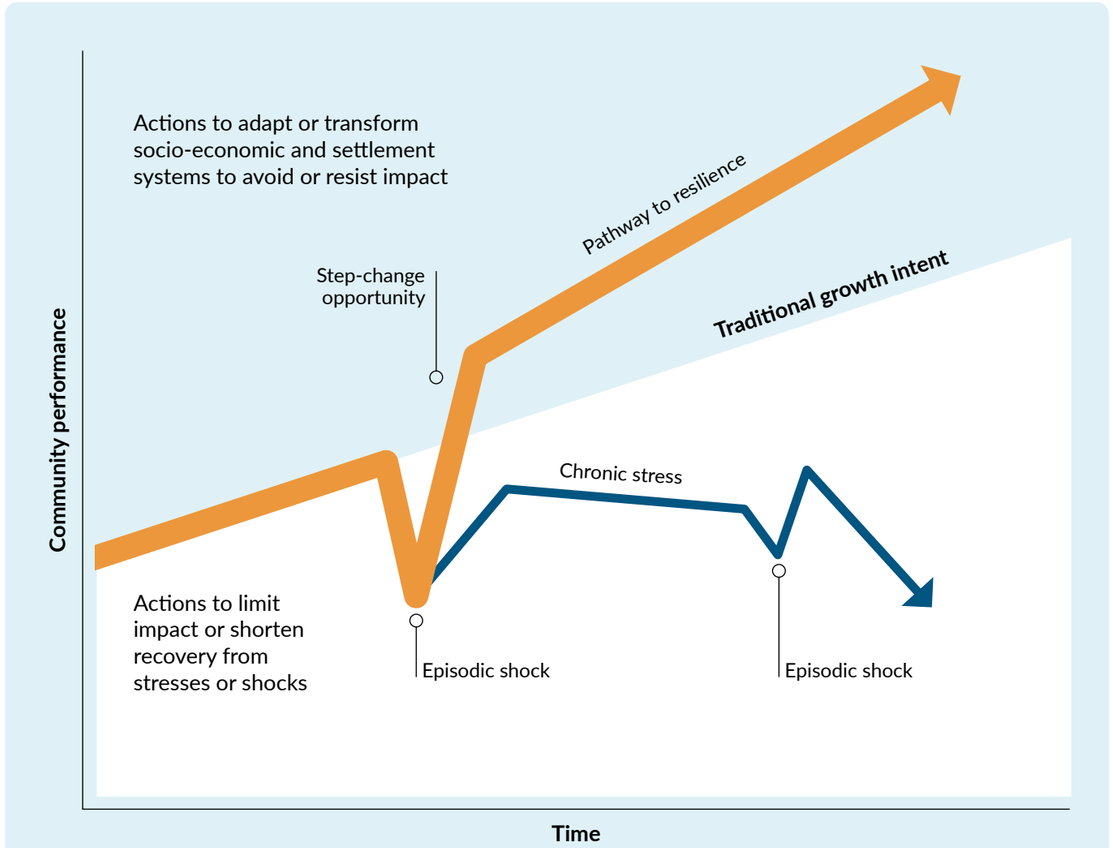
+ Improving availability and accessibility of mental health support services in the region
+ Capitalise on existing networks and provide mental health support, building community connection
+ Water resource redundancy and opportunities for improved diversified water supply
+ Attractive and diverse natural landscapes and recreational and tourism opportunities
+ Existing and expanding transport connectivity
+ Retain youth and skills within the region
+ Leverage diverse industry and economic opportunities within the region
+ Council and community connections

Expected Benefits

This RDR Plan focuses on providing specific actions to help primary producers and communities become more prepared for, and resilient to, the impacts of drought. The expected benefits of these actions are underpinned by the ability to absorb, adapt to, or transform, to deal with the stresses of drought (see Figure 3.2 below).

The actions outlined in this Plan provide a blueprint for our region to continue to improve drought resilience for years to come. Further implementation funding will become available across Australia under the Commonwealth Government's FDF, ensuring these actions can be brought to fruition. Planning for resilience allows for greater recovery following shocks and stressor events. This shortened recovery period is characterised as 'resilience benefits' (Figure 3.2). That is, efforts in becoming resilient before a shock/stressor event, result in benefit at a later stage. For example, reduced disaster damage, lower recovery costs, and improved mental health benefits.

Figure 3.2: Improving our prosperity through resilience (adapted from Fiksel, 2016[24])



Strategic Alignment

The FDF seeks to enhance the public good by building drought resilience in Australia's agricultural sector including the landscapes and surrounding communities on which they are built. The intent of its eight interrelated foundational programs is to have an innovative and persevering farming sector, a sustainable natural environment, and adaptable rural, regional, and remote communities, all with increased resilience to the impacts of drought and climate change.

The FDF is intended to deliver against three inter-connected strategic priorities:

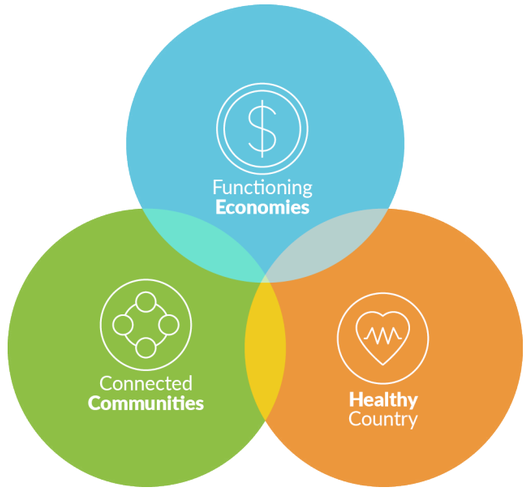
+ **economic resilience** for an innovative and profitable agricultural sector
+ **environmental resilience** for sustainable and improved functioning of farming landscapes
+ **social resilience** for resourceful and adaptable communities.

The RDR Plans focus on the community as a system where economic, built, environmental, and social capacity to endure, respond, and evolve through drought are enhanced.

The *20-Year Economic Vision for Regional NSW* was released in 2018. This strategy sets out the NSW Government's priorities and plans to achieve long-term social and economic success for regional communities across the state.

Other key strategies with strong linkages and relationships to matters of drought resilience include the Regional Economic Development Strategies (REDS) and NSW State and Regional Water Strategies. Key tools which support the delivery of the NSW Government's vision for drought ready regions include:

+ The Australian Government's *Drought Resilience Adoption and Innovation Hubs* (including Charles Sturt University) in southern NSW.
+ NSW Government Department of Primary Industries *DroughtHub*, an online drought assistance and information portal for NSW primary producers.
+ NSW Government *AdaptNSW* website, to inform and empower communities, businesses, households, and government to adapt to climate change.



With a focus on drought readiness and economic diversity, the strategy provides a framework to help regional communities prepare for drought. The plan promotes strong and diversified regional economies, future-ready primary industries, and stronger communities. The strategy includes 14 specific actions across three key areas of commitment:

+ **Sustainable, secure, and healthy water resources** through six actions for more efficient and coordinated water resources which support the *NSW Water Strategy*.
+ **Stronger primary industries prepared for drought** through five actions for accelerated innovation, information systems and diversification.
+ **Stronger communities and diverse regional economies** through three actions supporting community resilience which include this RDR Plan.

04

About this Regional Drought Resilience Plan

This BLO RDR Plan is a collaboration between Bathurst Regional Council (BRC), Lithgow City Council (LCC), and Oberon Council (OC).

The RDR Plan is designed to strengthen the capacities of residents, communities, institutions, businesses, and systems to better withstand the economic, environmental, and social challenges stemming from droughts. Building a resilient region will ensure the region is not only prepared for drought, but can continue to grow, thrive, and prosper throughout drought and beyond. By investing in resilience now, the region stands to benefit in good times as well as being adaptive in challenging periods.

Most crucially, the RDR Plan is **community owned and driven**, co-designed with community leaders, community members, local businesses, and organisations. This provides a foundation for the Plan targeted at minimising future impacts while leveraging opportunities to strengthen community resilience.

Purpose of the Plan

The BLO RDR Plan provides support to help our region better plan for and become more resilient to the impacts of drought over time. It has been developed in a collaborative, partnership approach, drawing on locally led inputs drawn from those who live and work in the region. It identifies community-led and council-facilitated actions to achieve the strategic objectives of both the FDF Agreement, as well as those of our individual and remarkable communities.

The purpose and aims of this Plan are outlined below in Figure 4.1.

Figure 4.1: Purpose and Aims of the RDR Plan

- Create **stronger connectedness** and greater social capital within communities, contributing to wellbeing and security
- **Empower communities** to implement transformative activities that improve their resilience to drought
- Support more **primary producers** to adopt **whole-of-system approaches** to natural resource management to improve the natural resource base, for long-term productivity and landscape health
- **Increase** the **understanding** of the region's current and future drought resilience, considering the region's unique economic, environmental, and social characteristics
- Form **stronger connections, relationships,** and **networks** within regions
- Combine **First Nations'** and **local knowledge** with resilience, and risk data and information to make informed decisions
- Identify **actions, pathways and opportunities** to improve regional drought resilience, mitigate risks and adapt to change
- Help councils be in a **stronger** position to implement strategic actions and take advantage of opportunities as they arise
- Develop **concrete, tangible actions** to address and mitigate short- and long-term drought impacts

The Process in Detail

Figure 4.2: The Drought Resilience Planning Process in Detail

Pre-Planning
Setting Project Foundations

- Establish **Project Control Group** (representatives from Bathurst Regional, Lithgow City, and Oberon Councils, and Department of Regional NSW)
- **Engage** with Subject Matter Experts
- **Resilience Assessment** (local strategic context, environmental, social, and economic drought impacts, drought projections, challenges and opportunities)
- **Stakeholder & Engagement Plan** (key stakeholders and demographics and how to involve them)
- **Have Your Say Survey** (generating project interest and ground-truthing desktop study)

Round 1 Engagement
Challenges and Opportunities

- **Where:** Oberon, Burraga, Lithgow, Cullen Bullen, Bathurst
- **Who:** Community members, stakeholders, representatives from key organisations
- **What:** Workshops, Street Talks, Phone Interviews
- **How:** Group discussions on Drought Impacts, Community Strengths, Existing Services and Ideas for Action across key areas: *Vulnerable groups, community and recreation, environment, local business and regional economy, utilities and infrastructure, cultural heritage and innovation*

Themes
Where to Focus Effort

- Agriculture
- Local Economy
- Mental Health
- Water Security
- Education
- Environmental, Social, and Economic efforts

Round 2 Engagement
Solutions for the Future

- **Where:** Bathurst, Burraga, Capertee, Lithgow, Oberon, Rydal
- **Who:** Key stakeholders able to deliver or support actions
- **What:** Workshops with stakeholders clustered by theme
- **How:** Facilitated discussions - review of ideas from round 1, additional ideas, idea evaluation (effectiveness, feasibility, value for money, addressing root cause, capacity to deliver, avoid duplication of efforts)

Outcomes
How to Get There

- Plan Objectives
- Action Shortlist
- Supporting Actions
- Next Steps

Round 3 Engagement
Action Detail

- Action rationale
- Implementation steps
- High-level cost estimates
- Action lead and stakeholders
- Action KPIs and evaluation
- Supporting actions and next steps

Synthesis
The RDR Plan

- Vision, goals, and objectives
- Actions under Economic, Social, and Environmental Pillars
- Monitoring, evaluation, and learning

Describing the system

Through desktop research and engagement with the community, the key features of the region have been identified and described. Using available information from the BoM, IDCommunity, Census and Australian Bureau of Statistics data, Council data, and pertinent local plans, a synthesised Resilience Assessment, considering the statistics of our economy, social, and environmental sectors was developed. This technical study fleshes out the existing baseline of drought resilience, from which understanding can be built upon, strengthening our community.

Exploring scenarios

The Resilience Assessment was also designed to encapsulate what future drought means for the region. This study was undertaken to inform the subsequent community engagement activities, providing valuable information informing the stakeholder and community consultation program. This provided a baseline for resilience challenges and opportunities. Using high emission climate scenarios (particularly Representative Concentration Pathway (RCP) 8.5), data was analysed to explore possible futures of our region. Existing and projected (for 2050 and 2090) conditions for temperature, rainfall, and bushfire danger allowed us to paint a picture of possible drought situations ahead of us. Regionally specific data was drawn upon to provide locally relevant impacts and understanding for BLO, seeking to see events through the eyes of our community.

Analysing the system

Using these climate scenarios, the impact of drought to each system within the region was explored. This relied not only on numbers and datasets, but also on local stories and research to uncover historic impacts across social, cultural, economic, and environmental spheres. This took a broad view, considering how different stressors could interact and amplify each other and defined a number of feedback loops within the landscape of the region. This information was used to develop a preliminary understanding of the challenges facing the region, and opportunities available surrounding drought resilience.

Scoping and goal setting

Using community and stakeholder engagement, this step involved building upon the challenges and opportunities identified, in addition to understanding what a drought resilient region might look like. This involved three rounds of community and stakeholder engagement, in addition to a 'Have Your Say Survey'. Using the 'Have Your Say' survey, insight on key visions for a drought resilient region helped to capture the region's goals in three to four words. Integrating ideas from the community, business representatives, representatives from NSW Government, service providers, charitable organisations, and Council enabled the crafting of a vision and goals aligning with values and characteristics of the region.

Community input was sought in the first round of engagement to refine the understanding of past drought impacts, capture all current actions, supports, services and the challenges from a community's perspective. These were captured within the Resilience Assessment.

Stakeholder mapping and engagement

The community are the primary driver to the development of this RDR Plan. To obtain a diverse range of stakeholders across the community to inform better preparation, response, and recovery in a collaborative manner, mapping exercises were undertaken. Using provided council databases and research, stakeholders were contacted and recruited across key industries including (but not limited to):

- Education (schools, early childhood educators, university representatives, Tafe).
- Water and agriculture (local farmers, water utilities, farm equipment manufacturers and suppliers, trades).
- Environment (Landcare, Local Land Services (LLS) etc).
- Health (Rural Financial Counselling Services (RFCS), Lifeline, Services Australia).
- Businesses (local small businesses, volunteers such as Country Women's Association, National Disability Insurance Scheme/ employment providers).

In workshops, community voices were valued, making sure all voices were heard. The principles of inclusivity, accessibility, long-term horizon planning, and transparency were followed, building stakeholder influence and relationships to the RDR Plan, and ensuring community buy-in. Using the International Association of Public Participation (IAP2) Framework, workshops were collaborative in nature, with individuals empowered to lead and own actions fleshed out. This ensured everyone had a voice in shaping our plan.

Imagining change

This plan went beyond the collection of data and required the community to imagine a better future. Round one of community engagement was used to encourage community ideation as a basis for action identification and 'blue-sky' thinking. This was done through their expression of opportunities and possible actions in the future. Key themes and ideas were continuously raised across the region, with themes naturally falling into several areas including business resilience, community connection and mental health, economic diversification, and environmental resilience.

Generating options

Based on the outcomes of first round community engagement, ideas were vast and broad, creating significant opportunities for potential change. Actions were evaluated and condensed into a long list, ranging from assisting in the development of a business 'health check' to hosting small events and activities promoting mental health. These were sorted into environment, economic, and social pillars to allow for prioritisation where long-lasting change was possible.

Sequencing pathways

To move forward, a clear path had to be set. To maintain trust and transparency across the development of the RDR Plan, actions and ideas generated from engagement were themed and presented back to collaborators and community members in the second round of engagement. Engagement was structured with stakeholders grouped according to their relevance to key action themes, including (but not limited to) social connectedness, economic diversification, and mental health.

The intended outcome of this engagement was to prioritise the list of actions to create a short-list to be detailed within the plan, alongside the identification of action owners. This was done by stepping through implementation of each action with the community, lending a tangible and purposeful nature to the actions.

Implementing pathways

Finally, goals and actions must be implemented to achieve benefits. Applying lessons learned, the final round of engagement involved workshops which were held with self-identified action owners and relevant stakeholders to flesh out and develop implementation steps for each action, following the Investment Logic Map approach. These workshops were designed to encourage conversations around practical implementation steps, and to encourage buy-in. Prioritising how effective actions are in addressing the resilience challenges, identified in prior workshops, ensured each action was set up for success, creating a level of accountability.

Monitoring and evaluation processes were developed in alignment with actions to ensure continuous innovation and learning is fostered through intentional capacity building and education, arming ourselves with knowledge and drought awareness for the future. Figure 6.1 further shows how actions were developed.

Key Inputs

Numerous existing bodies of work spanning governance and leadership, primary production, economic, social, demographics, infrastructure, land use, climate change and other scientific studies and research including policies and strategic plans at international, national, state, and council level were used as key inputs for this RDR Plan. Priority actions of this Plan have been mapped against these key inputs to demonstrate the strategic alignment of each action. This is further elaborated in the Action Strategic Alignment section.

Our Partners

This RDR Plan was developed by BRC, LCC, and OC through an understanding of the unique challenges facing our region and gathering input from a wide range of key stakeholders from our community. A dedicated and thoughtful engagement approach was undertaken to connect with the community including interviews, phone calls, surveys, workshops, street talks, and one-on-one meetings. From the community engagement, it is understood that the existing community resilience rests upon strong primary industries, established agricultural supply chain sectors, local businesses, relevant local governments, as well as community organisations and service providers. However, it is also understood there is still much to be done in the eyes of the community, and as such, the intent of this RDR Plan is to be led and driven by our communities.

More than 220 community members, business representatives, NSW Government representatives, service providers, charitable organisations, and the three Councils were engaged to ensure this RDR Plan was community-led and focused. Many of them shared their stories of hardship, community spirit, and perseverance in the face of drought and how, as a community, they can plan for a more resilient future.

While the focal point of this engagement was targeted workshops and surveys, informal engagement was also conducted with a broad cross-section of the community, providing critical insight into local challenges, opportunities, and potential solutions for drought resilience. From the vibrant regional centre of Bathurst to the beautiful valley of Lithgow, to snow-dusted hilltops of Oberon, stakeholders included graziers, health providers, support services, local business owners, community organisations and more, sharing about their drought journey, and the drought journey of the region. Figure 4.3 provides an overview of the community and stakeholder engagement undertaken, with the ***Engagement Outcome Summary Report*** providing a more detailed overview of the engagement outcomes.

Figure 4.3: Engagement outcomes

Workshops
15 workshops with
> 132 participants

Organisations Engaged:

+ Jenolan Caves.
+ Rural Financial Counselling Services (RFCS).
+ Rural Adversity Mental Health Program (RAHMP).
+ Oberon Rotary Club.
+ Burraga Ag Bureau.
+ Council Employees and Departments.
+ Councillors.
+ Destination Central West.
+ Department of Regional NSW .
+ Hartley Branch NSW Farmers.
+ Central Acclimatisation Society.
+ Bathurst Merino Association.
+ Lifeline Central West.
+ The Enviro Factor.
+ NSW Health - Rural Response Recovery team.
+ Salvation Army.
+ Jemena Gas.
+ Retirees.
+ Self-Employed Persons.
+ Contractors.
+ NSW Farmers and Graziers.
+ Central Tablelands Regional Landcare.
+ Town and Country Rural Supplies.
+ Bathurst High Campus.
+ Local Land Services (LLS).
+ Western Sydney University (Lithgow campus).

Surveys (Have Your Say)
43 participants

Groups represented in survey:

+ First Nations.
+ Young Adults.
+ Elderly.
+ Agricultural industry (>40% of respondents).
+ Healthcare and social services.
+ Tourism.
+ Manufacturing.
+ Retail.
+ Hospitality.
+ Education.

Invitations
>300 sent

Workshop and Engagement Invitations sent:

+ Accommodation providers.
+ Tourism.
+ Indigenous.
+ Schools.
+ Small businesses.
+ Manufacturing and Industries.
+ Real Estate.
+ NSW Farmers.
+ Progress Associations.
+ Country Women's Associations.
+ Community Organisations.
+ Education Providers (including Western Sydney University (Lithgow Campus)).

Street walk
55 participants

Businesses consulted:

+ Coopers Antiques.
+ Spark Electrical.
+ Barkers Butchery.
+ Bowyer & Livermore.
+ Oberon Bakehouse.
+ Elders.
+ Oberon Veterinary Hospital.
+ Oberon Saddlery.
+ Kringle Cottage.
+ Lithgow Mobility Aids.
+ JG Locksafe and Security.
+ Lithgow Technology Service.
+ Dennis Seafood.
+ Lithgow Pet Barn.
+ KISS.
+ Lithgow Laundry.
+ SoL Healing Crystals.
+ Lost Souls Second Hand Books.
+ Dimmey's Bargain Shop.
+ Uniting Care Lithgow.
+ Lithgow Fire Safety Supplies.
+ Super Cheap Auto.
+ Portland Post Office.
+ Portland Police.
+ Coronation Hotel, Portland.
+ BP Portland.
+ IGA Portland Plus Liquor.
+ Portland Newsagency.
+ Diggers Corner Café and Takeaway Portland.
+ Portland Country Women's Association.
+ Vinnies Portland.
+ Vivability.
+ Armada Bathurst Shopping Centre.
+ Go Vita.
+ Aussie Disposals.
+ Raine and Horne Property.
+ DARE Financial Solutions.
+ Nutrien Ag Solutions.

Emails and phone conversations
>7 participants

Groups interviewed:

+ Central West Joint Organisation (JO).
+ Destination Central West.
+ Portland Village Voice (newspaper).
+ Blinky Bill Early Learning Centre Portland.
+ Mingaan Wiradjuri Local Aboriginal Land Council.
+ TafeNSW.
+ Charles Sturt University.

The four main principles that underpinned our engagement strategy for the RDR Plan are:

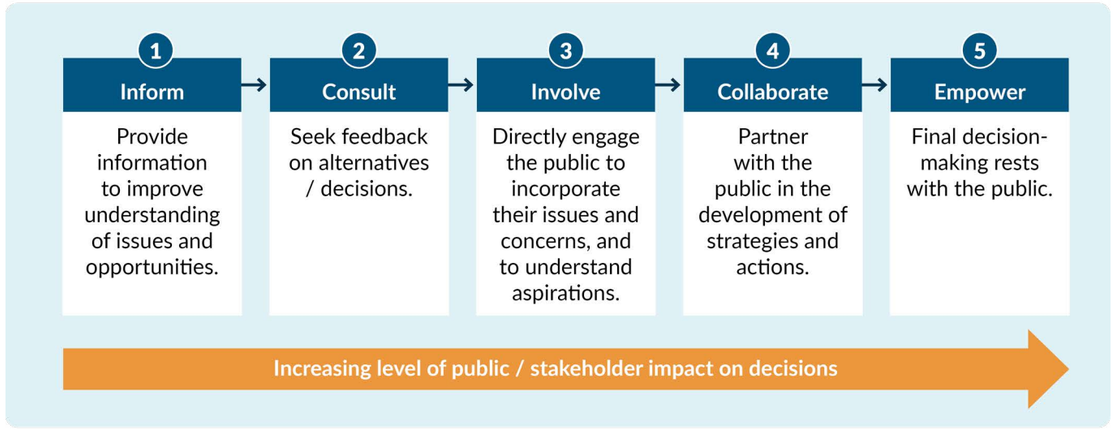
+ **Inclusivity:** consult with a diverse range of stakeholders and community representatives to capture a range of local needs, interests, capacity, and co-design recommendations for opportunities and actions.
+ **Accessibility:** ensure equitable representation of susceptible communities, including those living with disabilities, women, youth, and the elderly.
+ **Long-term horizon planning:** facilitate community discussions that focus on sustainable actions which deliver long-term, enduring outcomes.
+ **Transparency:** use engagement techniques and reporting frameworks that foster openness and trust.

The objectives of our engagement from the outset were:

+ Foster **co-designed, community-led planning,** and **collective ownership** of the resulting plan to leverage existing strategic planning and avoid duplication of effort,
+ **Recognise the diversity of people, businesses and landscapes** involved in agricultural production, including Indigenous groups and landholders, and
+ **Harness diverse region-specific knowledge and skills** for a triple-bottom-line approach.[25]

Our engagement strategy for the RDR Plan was also informed by the internationally recognised approach developed by the IAP2 depicted in Figure 4.4 below. As far as reasonably practicable, the intention was to engage with community and stakeholders at the collaborate and empower end of the spectrum.

Figure 4.4: IAP2 Framework



Source: International Association for Public Participation

05

Regional Profile

Our region rests on the traditional lands of the Wiradjuri, Dharug, and Gundungurra people. The Wiradjuri are the largest language group in NSW, with a strong historic and contemporary presence in Bathurst and Lithgow.[26,27] In Oberon, the Gundungurra and Wiradjuri people have deep-rooted ties to the land.[28]

Each of our LGAs have their own unique charm, contributing to the cultural diversity and economic vitality of the Central West, with transport links connecting them to broader NSW. Lithgow benefits from the Great Western Highway and the Main Western Railway line, making it a vital transportation hub for both road and rail. Bathurst has connectivity through the Great Western Highway and the regional airport, ensuring easy access to Sydney and beyond. Oberon relies primarily on road links, with the Oberon-Bathurst Road connecting it to Bathurst and neighbouring regions.

Figure 5.1: Our Region

Bathurst LGA

Bathurst, Georges Plains, Hill End, Peel, Rockley, Sofala, Sunny Corner, Trunkey Creek, Wattle Flat, Perthville, Eglinton, and Yetholme

Area - 3,820km²

Lithgow LGA

Lithgow, Ben Bullen, Capertee, Glen Davis, Hampton, Cullen Bullen, Clarence, Hartley, Newnes, Old Bowenfels, Portland, Rydal, Sodwalls, Tarana, and Wallerawang

Area - 4,552km²

Oberon LGA

Oberon, Black Springs, Shooters Hill, Edith, O'Connell, Hazelgrove, Mount David, Jenolan, and Burraga

Area - 3,659km²

Economic Profile

Understanding the economic profile of the region is critical in drought resilience planning, providing insights into the region's economic dependencies. Similarly, it helps to identify the potential strengths and can allow for the appropriate allocation of resources to mitigate economic hardship during prolonged dry periods. An overview of the key industries by employment is displayed in Table 5.1 with a comparison against NSW in Table 5.2.

Bathurst

BRC's Gross Regional Product (GRP) reached $2.62 billion in 2022, marking a 0.4% growth compared to the previous year. The Bathurst local economy is founded on a diverse range of industries, including health care, education, food manufacturing, and construction. Key exports include primarily food product manufacturing, and education, while robust local sales are attributed to the strength of the construction and property industry.[29] Notably, the region's agriculture and industry held a significant presence, with a value add (indicator of business productivity) of 5.2% compared to the state average of 2.4%, while road transport accounted for 3.8% of value added, compared to NSW's 1.9%. Bathurst's major industries of employment in 2021 included health care and social assistance, education and training, and construction.

Lithgow

Lithgow's GRP stands at just under $1.3 billion, while nearly 1,470 businesses contribute to the employment of over 8,623 individuals.[30] The mining industry has the Gross Value Add (GVA) equal to approximately 23% of the Lithgow regional economy.[31] Although the finance and insurance services industry is not a top employer, it has a high GVA due to higher wages associated with this industry.[32] For the Lithgow LGA, the health care and social assistance, public administration and mining are the dominant industries by employment. This underscores the region's wealth of mineral resources and resultant employment opportunities it offers. The coal produced in the 'Lithgow' seam is used today for electrical power production.[33] It is also suitable to produce coke for fuel.

Oberon

Unlike, Bathurst and Lithgow, Oberon's primary employment sector in 2021 was manufacturing, accounting for 16.7% of jobs. This was followed by agriculture, forestry, and fishing, and health care and social assistance. The local economy relies heavily on the timber production and processing industry, while the total gross value of agricultural production in Oberon is $33.1 million.[34,35] The GRP of the region stands at $381 million, supported by 701 local businesses, including 49 tourism-related businesses operating within Oberon.[36,37]

Table 5.1: Top Five Major Industries and Employment Statistics[38,39,40]

Industry	*% employed*
Bathurst	
Health Care and Social Assistance	16.7%
Education and Training	12.5%
Construction	10.7%
Retail Trade	9.1%
Public Administration and Safety	8.8%
Lithgow	
Health Care and Social Assistance	11.6%
Public Administration and Safety	10.6%
Mining	10.2%
Education and Training	7.9%
Retail Trade	7.7%
Oberon	
Manufacturing	16.7%
Agriculture, Forestry and Fishing	14.4%
Healthcare and Social Assistance	9.6%
Construction	8.9%
Education and Training	7.0%

Table 5.2: Employment Statistics for NSW comparison[41]

Industry	*NSW %*
Healthcare and Social Assistance	14.2%
Retail Trade	9.3%
Construction	8.9%
Education and Training	8.6%
Manufacturing	6.2%
Public Administration and Safety	6.1%
Agriculture, Forestry and Fishing	2.1%
Mining	1.1

Environmental Profile

Bathurst

Bathurst is home to various plants and animals of significance. However, many of our biodiverse counterparts are threatened, with populations in decline. The Bathurst LGA is home to a range of threatened species such as the Pink-tailed Legless Lizard and four endangered ecological communities, providing important habitat features for migratory bird species.[42,43] The Macquarie River flowing through Bathurst, serves as a lifeblood for both the environment and local communities. Campbells River and Fish River also enhance our hydrology.

Lithgow

Located on the western edge of the Blue Mountains and defined by rolling hills, rugged plateaus, and valleys, Lithgow ranges from lush green expanses to rocky escarpments where our biodiversity thrives. Lithgow is home to numerous native flora and fauna species, including wombats, kookaburras, and various bird species. Wet and dry eucalypt forests, heathlands, and woodlands, support the ecological diversity of the area, including many threatened species, such as the Hyacinth Orchid.[44,45] Prominent watercourses like the Cox's River, Farmers Creek, Wolgan River, Lake Lyall, and Lake Wallace support a wide range of aquatic life. These waterways also play a pivotal role in Lithgow's cultural and recreational activities, offering opportunities for fishing, kayaking, and picnicking.

Oberon

Nestled within the Central Tablelands and surrounded by the World Heritage-listed Greater Blue Mountains Area, Oberon is home to numerous national parks and reserves including Jenolan Karst, Kanagara-Boyd, and Abercrombie National Parks.[46] Our natural environment supports a rich diversity of flora and fauna, including unique plant species like the Oberon Grevillea and a variety of wildlife. Threatened species identified in Oberon include the Spotted-tailed Quoll.[47]

Social Profile

An overview of the regional profile is depicted below in Figure 5.2. The region has a culturally and demographically diverse population, with a significant number of people born overseas or with languages other than English (LOTE). According to IDcommunity (based on Australia Bureau of Statistics (ABS) 2021 Census data), the region has a generous community, with considerable volunteer contributions to the communities, however, volunteer populations have declined since 2016.

Figure 5.2: Community Profile

	Bathurst LGA	Lithgow LGA	Oberon LGA	NSW
	43,567 people	20,842 people	5,580 people	8.1 million people
Aboriginal and/or Torres Strait Islander	7.9%	7.8%	4.7%	3.4%
Median age	38	46	47	39
Indigenous median age	22	26	26	23
Forecast pop, growth to 2041	29.53%	17.54%	0.20%	20.89%
People born overseas	15.5%	17.9%	33%	34.6%
LOTE	12.4%	12.7%	17.3%	32.4%

Socio-economic indicators in Bathurst, Lithgow, and Oberon reveal significant variations in the economic landscape of our region (see Table 5.3 below). According to IDcommunity, at least a third of the region's population comprise low-income individuals (weekly income of less than $500). According to ABS 2021 Census data, Bathurst has an average unemployment rate of 4.4%, while Lithgow and Oberon's unemployment rate is 5.5% and 3.5% respectively. This is reflected in the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD), indicating that Lithgow is the most disadvantaged LGA within the region.

According to the ABS, the Aboriginal unemployment rate in Bathurst sits at 9.7%. For Lithgow, the Aboriginal unemployment rate is 10.9% and for Oberon, this is at 14.5%, which is notably higher than the other LGAs.

Table 5.3: Demographics and socio-economic indicators of Bathurst, Lithgow, and Oberon[48,49]

	Bathurst LGA	Lithgow LGA	Oberon LGA	NSW
Population with a disability	2,807 (6.4%)	1,582 (7.6%)	308 (5.5%)	**5.8%**
Low-income individuals	10,716 (30.3%)	6,520 (37.5%)	1,431 (30.8%)	**33.6%**
Unemployment rate (of those in the workforce)	4.4%	5.5%	3.5%	**4.9%**
Aboriginal unemployment rate	9.7%	10.9%	14.5%	**12.3%**
Volunteer status 2021	14.9%	14.5%	13.9%	**13.0%**
Volunteer status 2016	20.7%	18.4%	20.1%	**18.1%**
IRSAD*	4	2	3	**N/A**

** Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) 1- most disadvantaged, 5 – most advantaged[50]*

Our History of Drought Impacts

Drought as a natural hazard is pervasive, recurring, and distressing. It is difficult to determine a start and end, or when the landscape has recovered. As for other disasters, they are difficult to predict or compare with differences in seasonality, extent, duration, severity, among other variables all contributing to the drought experience.

Australia has highly variable rainfall records and in contrast also has highly variable periods of low rainfall. The BoM has four definitions of drought, which are meteorological, agricultural, hydrological, and socio-economic (see Figure 5.3 below).

Figure 5.3: Types of droughts

1. **Meteorological drought,** or a period of months to years with low rainfall.
2. **Agricultural drought:** short-term dryness in the surface soil layers (root-zone) at a critical time in the growing season.
3. **Hydrological drought:** prolonged moisture deficits that affect surface or subsurface water supply, reducing streamflow, groundwater, dam and lake levels.
4. **Socio-economic drought:** other effect of elements of the above droughts on supply and demand of economic goods and human well-being.

Source: BoM

Drought Monitoring in NSW

The Enhanced Drought Information System (EDIS) is a publicly available drought monitoring tool that monitors seasonal conditions across NSW. 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).

The CDI integrates a range of data and model outputs in a framework that is useful for decision makers. It combines meteorological, hydrological, and agronomic definitions of drought (above) using indexes for rainfall, soil and water and plant growth. From these, a fourth index, drought direction, is developed. EDIS is undergoing redevelopment to provide farmers with world-leading weather and climate data to enable better business decisions.

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 (see Figure 5.4 below).

Complementing the stages is detailed information on:

+ A technical and on-the-ground description of typical field conditions.
+ A suggested on-farm response.
+ A suggested advisory or policy response.

Figure 5.4: Stages of drought in NSW

1. **Non Drought Phase:** At least one indicator is above the 50th percentile.
2. **Recovering Phase:** All indicators are below the 50th percentile but above the 30th percentile.
3. **Drought Affected (weakening) Phase:** At least one indicator is below the 30th percentile and the rainfall trend is positive over the past 90 days.
4. **Drought Affected (intensifying) Phase:** At least one indicator is below the 30th percentile and the rainfall trend is negative over the past 90 days.
5. **Drought Phase:** At least one indicator is below the 5th percentile.
6. **Intense Drought Phase:** All three indicators (rainfall, soil water, plant growth) are below the 5th percentile.

Source: EDIS

The Regional Drought Context

The geological landscape of Australia makes it prone to experiencing extreme weather events including extended periods of meteorological and hydrological drought.[51] Historically, Australia has experienced drought about once every 18 years with periods in between ranging from four to 38 years.[52]

Drought events impacting each LGA have been provided in the timeline below.

Historic droughts

Bathurst LGA

1982-83 drought
This drought had dramatic impacts to our city, with strict water restrictions put in place (and rigorously monitored).

December 1997-mid-1998
A long hot summer period resulted in a substantial increase in water usage, with restrictions remaining in force until mid-1998. An upgrade to the Chifley Dam in 2001 doubled the town's storage capacity and is credited with maintaining the area's water security.

2007
High wheat prices prompted the Mars Pet Care factory in Bathurst to consider reducing their shifts from a four-shift to a three-shift operation.[53]

Lithgow LGA

LCC investigated the viability of recommissioning the Farmers Creek Number One Dam to increase storage by 17% and provide the Council with a 10-day emergency water supply.[54]

May 2018
Lithgow City Councillors lobbying on behalf of farmers.

Oberon LGA

May 2005
Council changed its roadwork schedule due to drought conditions. The lack of rain meant there was insufficient water to work the road base into a smooth surface to allow sealing.[55]

May 2008
Oberon's water supply fell below 17%, its lowest level since 1945.

December 2009
Delta Electricity announced it would stop taking water from Oberon Dam when its capacity was projected to reach just 8 per cent, in response to community concerns.[56]
2011, Delta Electricity installed a reverse osmosis system, allowing reuse of water from the Cox's River.[57]

2011
Changes to Oberon's annual water allocation (750 megalitres increased to over 1,000 megalitres).

February 2014
Central Tablelands Local Land Services commenced drought meetings in Oberon.

March 2014
Emergency Drought Assistance Packages. $20,000 per producer for Transport Assistance Reimbursement, and up to $30,000 per producer for Emergency Water Infrastructure Grants, and the waiving of Local Land Services rates.[58]

2017-2020 Drought Experiences

Bathurst LGA

November 2018
Water restrictions for first time in more than 20 years (1997).

Chifley Dam at 50%

December 2018
Regional unemployment reached 5.3%.

Late 2018
Corrective Services expanded their Drought Relief Program to the Bathurst correctional centre. The program offered the opportunity for inmates to help with maintenance projects, like fencing.[59]

July 2019
Macquarie Valley town, domestic and stock allocations reduced to 80% and high security to 70%.[60]

Bathurst 1000 event, 200,000+ visitors were expected to be conservative with water; 'Water-Let's make it last' campaign.[61]

November 2019
Irrigators restricted to 20% of their entitlement to conserve Chifley Dam water supply.[62] Vegetable growers (supplying major local employers like Simplot) effectively gave up 80% of their income. A $2,000 domestic water carting rebate was made available to eligible water users in the lower Macquarie Valley where regulated river flows had ceased.

2020
Day 0 was approached, with Chifley Dam recording its lowest level at 29% in March 2020.

Lithgow LGA

August 2019
Private company contracted to cart water for Centennial Coal's Charbon and Airly mines near Lithgow to secure 140 full time jobs.[63]

Oberon LGA

July 2018
30% less rainfall than their normal yearly average of 813 millimetres.

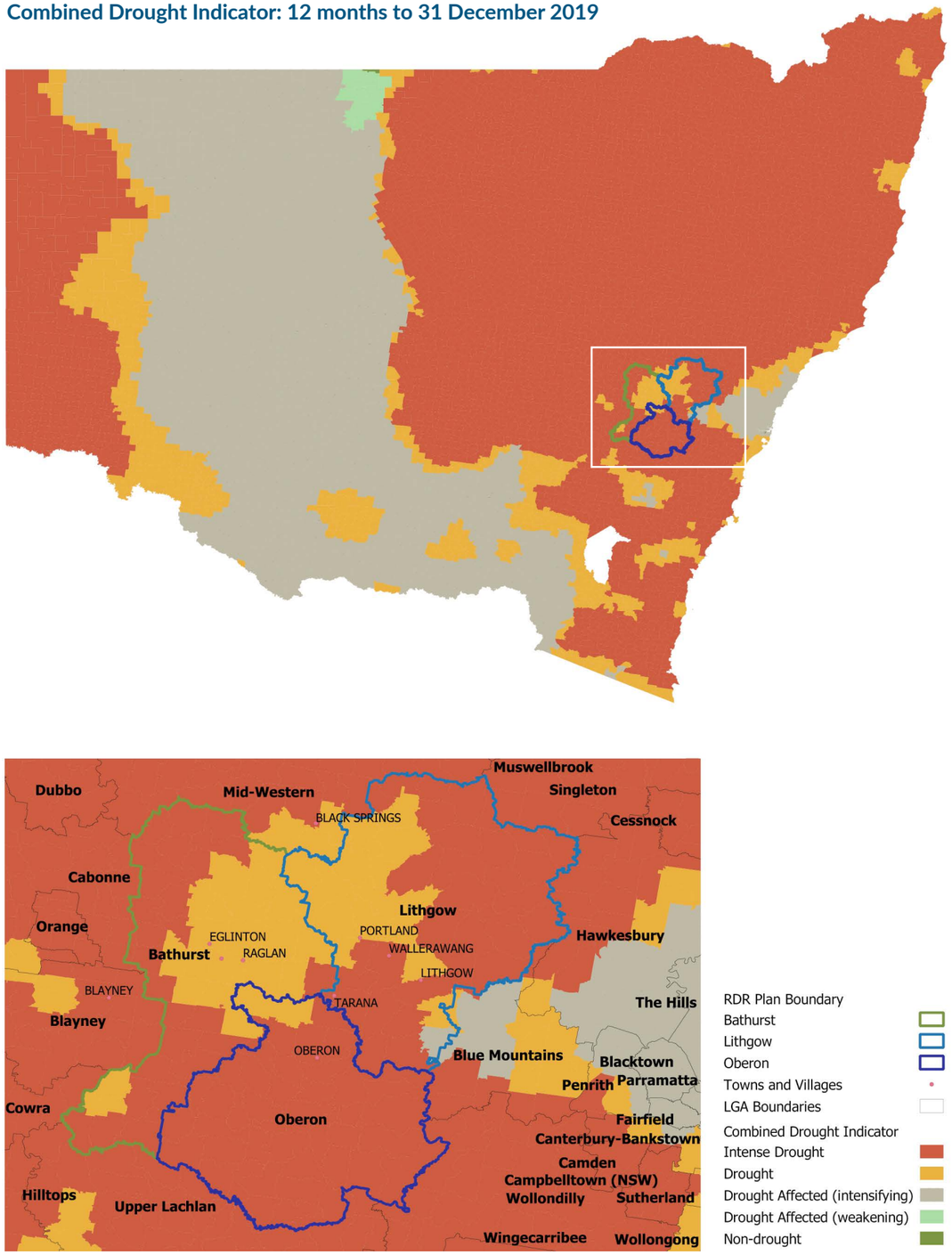
Graziers were destocking or handfeeding stock.

November 2019
Oberon Shire primary producers struggled to secure water for stock and crops, with normally fertile land rendered a 'dustbowl'.

The drought contributed to the severity of the 2019-20 bushfires which had a significant regional impact, with the most severe effects in Oberon LGA. 731km^2 of land was burnt (Bathurst and Oberon region wide), with direct impacts to the visitor economy due to damage to national parks and state forests.[64]

Figure 5.5: Drought areas mapped by Department of Primary Industries

Combined Drought Indicator: 12 months to 31 December 2019



Source: DPI

Future Drought Projections and Impacts

When considering drought hazards, it is key to account for the role climate change plays in exacerbating the effects of the event.[65] Globally, temperatures have increased by 1.15°C since pre-industrial levels at a rate of 0.2°C per decade, resulting in hotter and drier climates.[66] Regions experiencing increased temperatures and aridity intensifies drought conditions. Globally, drought days will increase by more than 20% by 2080 and the proportion of exposure to drought will increase by 9-17% by 2030 and 50-90% by 2080.[67] Winter and spring rainfall is projected to decrease by approximately 15% by 2030, and a further 20-30% by 2100, depending on the RCP scenario.[68]

In Australia, climate change has shifted weather patterns southward, causing a 15% decrease in late autumn and early winter rainfall since the 1970s.[69] By the late 21st Century there could be a 50% reduction in autumn and winter precipitation.[70] These changes have intensified recent droughts, notably the Millennium Drought in the late 20th and 21st Century, which have been severe compared to those experienced in the preceding 400 years.[71] Weather projections using an RCP 8.5 pathway predict average Australian temperatures will increase. The BoM have also declared El Nino is underway and is expected to continue until at least the end of the summer 2023-24.[72] This means warmer, drier conditions will occur over spring and summer. This also increases fire danger in south-eastern Australia. As of October 2023, 46% of NSW is drought affected, in drought, or experiencing intense drought conditions.[73]

Table 5.4 and Table 5.5 depict the climate change projections for BLO across 2050 and 2090 timelines, under RCP 8.5. This information has been sourced via the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Climate Change in Australia Threshold Calculator and CSIRO Central Slopes Cluster Report, depicting the mean projections for temperature and rainfall, and 50th percentile values for fire weather.

Table 5.4: 50th Percentile Climate Projections under RCP 8.5.

	Bathurst			Lithgow			Oberon*		
	Baseline	**2050**	**2090**	**Baseline**	**2050**	**2090**	**Baseline**	**2050**	**2090**
Temperature									
Number of days per year over 35°C	6.10	17.04	32.83	0.53	2.64	7.44	0.73	2.69	7.15
Number of days per year over 40°C	0.07	1.26	4.46	0.00	0.03	0.32	0.00	0.03	0.38
Rainfall									
Average days above the 99.9th percentile**	0.55	0.67	0.65	0.41	0.50	0.55	0.31	0.34	0.37
Average months per year below the 10th percentile***	1.17	1.50	1.68	0.93	1.44	1.58	0.90	1.23	1.30

** The threshold calculator only provides data for a select number of locations, including Bathurst and Lithgow. For Oberon, data has been sourced from Katoomba on the basis it is the closest in location and climate.*

***The number of days where the total rainfall is greater than the historic 99.9th percentile were tallied in both the historic and projected future 30-year daily time-series.*

****The number of months falling below the historic 10th percentile (sometimes referred to as "decile 1") rainfall total was counted in both the historic and projected future 30-year monthly time-series.*

Source: CSIRO Climate Change in Australia Threshold Calculator[74]

Table 5.5: Cluster Climate Projections for Fire Danger under RCP8.5.

	1995 Baseline	**2030***	**2090**
Fire Danger			
Number of Severe Fire Danger Days (Forest Fire Danger Index (FFDI) >50)	2.2 days	+3.7 days	+7.2 days
Cumulative Forest Fire Danger Index (FFDI) (for one year) (ΣFFDI)[75]	3,857	4,446	5,357

**2050 projections are not available within the Central Slopes Cluster Report. 2030 projections have been used as a substitute.*

Source: CSIRO Central Cluster Report[76]

Drought Impacts[77]

During the last drought … Oberon Reservoir supply suffered dramatically, and total storage reduced to below 10%.

Table 5.6: Impacts of Drought

Economic

- De-stock and reduced herd numbers.
- Reduced crop and agricultural production.
- Increased costs for animal care.
- Increased costs for land maintenance and weed control.
- Increased insurance claims for drought-related losses.
- Higher insurance premiums.
- Supply chain disruptions.
- Increased consumer prices.
- State and national increases to product and commodity prices.
- Water prices increase.
- Income loss.
- Increased unemployment.
- Rural-urban migration.
- Impact to family budgets.
- Reduced water availability for business operations.
- Water restrictions.
- Reduced tourism.

Social

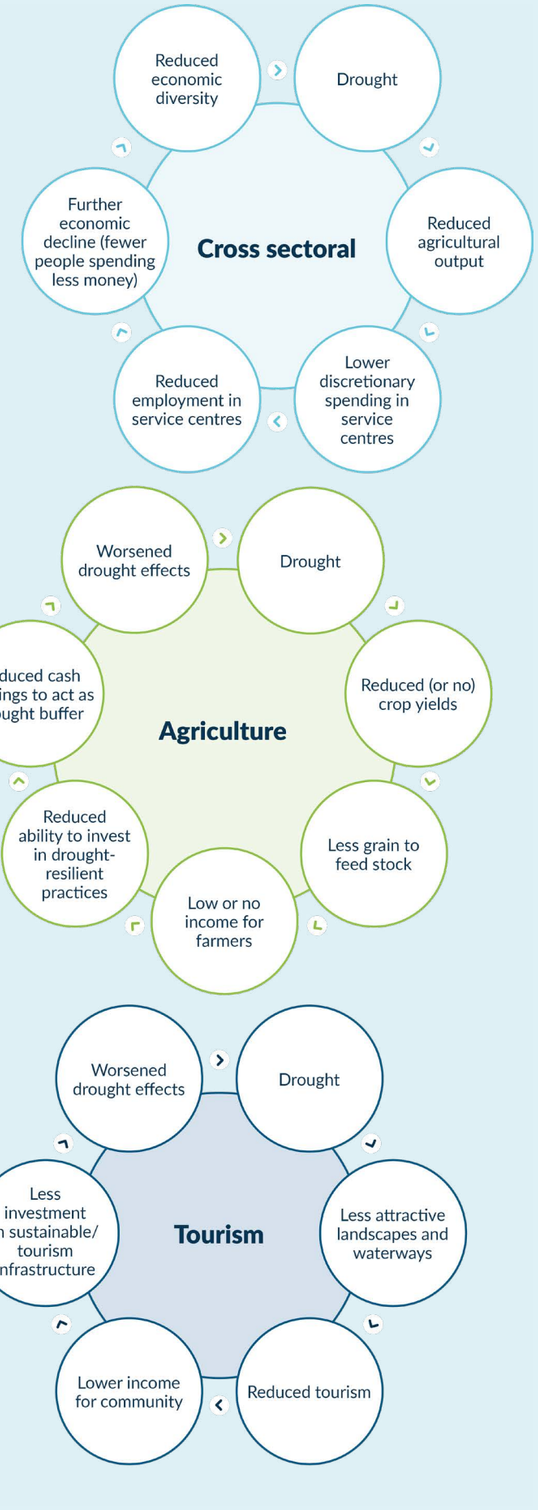
- Increased risk of depression and suicide.
- Increased isolation.
- Reduced community events and activities.
- Exacerbated impacts for lower socio-economic population.
- Challenges accessing support and services.
- Increased pressure on healthcare workers and system.
- Increased demand on volunteers.
- Reduced school attendance for young people.
- Health concerns (heat stroke, dust inhalation, etc.).
- Trauma.
- Forced migration.

Environmental

- Vegetation drying and death of plants/trees.
- Loss of aesthetic appeal.
- Increased risk of bushfires.
- Forest mortality and altered structure/composition.
- Reduced food and water supplies.
- Reduced habitat availability.
- Population decline.
- Species loss and extinction.
- Altered species migration patterns.
- Reduced freshwater quality (surface and subsurface).
- Water turbidity and algal growth.
- Increased soil and water salinity levels.
- Lower water levels in lakes, creeks, bores, and reservoirs.
- Increased risk of soil erosion.
- Landscape and soil drying, degradation, and desertification.
- Increased dust pollution, reduced air quality, and altered atmospheric chemistry.
- Weed growth.

Figure 5.6: Amplifying Feedback Loops in Drought

Figure 5.6 was derived from the Resilience Assessment desktop research, and feedback from the stakeholder and community engagement program. A systems mapping exercise was undertaken to visualise the amplifying impacts of droughts on the region. Accumulated knowledge shared by locals who know the region and the challenges they face was used to inform the creation of this diagram. Circular causes and effects of droughts were identified as a feedback loop under each sub-system (agriculture, tourism, social, cross-sectoral etc). For example, droughts cause lower crop yields, reducing farmers income and individual/community adaptive capacity and ability to cope with other shocks and stresses. This exacerbates the effects of drought within our region. The sub-systems also influence each other in parallel resulting in domino effects of droughts across region. The feedback loops demonstrate the complexity and interconnectedness of causes and effects of droughts in the region across multiple sectors and systems, and help to inform the development of drought resilience interventions and action pathways.



Resilience Challenges

Maintaining healthy landscapes

Our ecosystems suffer from drought-related land and water degradation. Blue-green algae outbreaks have occurred in the region.[78] Waterways must remain healthy so they can be utilised for recreational activities such as fishing, boating, and kayaking (something known to decline during drought times). Environmental degradation impacts tourism opportunities, having financial impacts on our region.

Projected population ageing

The region has an ageing community. Older populations are more vulnerable to health problems from drought, like heat stress during extreme heat. They are also more susceptible to mental illness and isolation during climate related hazards.[79] More elderly people within hospitals and healthcare systems could strain overstretched healthcare providers.[80]

Limited skill availability

A difficulty in attracting skilled labour, farm hands, and other assistance is known across the region. Succession planning was also a noted challenge, with an ageing population and fewer young people wishing to carry forward agricultural practices due to accumulating debt.[82]

Declining volunteer population

Further, declines in volunteer numbers have been observed due to burnout and an ageing workforce.[83] This will create resource constraints during future droughts, challenging the region in their response to drought, and provision of support for locals 'doing it tough'.[84]

Culturally diverse populations

Residents born overseas or from non-English speaking backgrounds may struggle to access typically English-communicated drought support services and relief. Indigenous People's may also be averse to accessing support due to generational trauma and government distrust. During drought, the degradation of cultural artefacts and the effects from biodiversity loss had cultural flow on impacts across Wiradjuri, Dharug, and Gundungurra residents.

Reliance on surface water supply

Despite water storage infrastructure like Chifley Dam, this doesn't always mean there is sufficient water during long droughts. In 2019, Bathurst was predicted to face "Day 0", where water supply would effectively run out.[88] Increasing population, water disputes, and agricultural demand strain surface water supply. Water supply infrastructure needs repairs and better planning.

Drought awareness

Many local residents and businesses think *"drought does not impact us"*. Many people moved out of Bathurst, Lithgow and Oberon LGAs following previous drought events, combined with an influx of new residents may mean local drought conditions are poorly understood (compounded by the current "green drought").[81]

Transparency and communication

A lack of communication and transparency of services available within the Bathurst, Lithgow, and Oberon region was perceived by our region's residents. The Council's efforts to provide clear and open disclosure of their actions and spending may benefit from further enhancement.

Service availability

The provision of local, timely resources was limited during previous drought years. Local residents stressed that time and resources were provided to LGA centres and larger LGAs such as Bathurst, with little to no support available within smaller regions such as Oberon, or satellite, rural villages.[85]

Industry reliance

Agriculture is a big part of our economy but is particularly sensitive to drought. Crop yields could be reduced causing an unanticipated loss of income.[86] Droughts create cash-flow difficulties. Income diversification can make farmers ineligible for support, creating "no-win" situations. The closure of coal mining and the transition to renewable energy could put an additional strain on the local economy with historic reliance's on mining in times of financial stress.[87]

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015 as a universal framework and blueprint to achieve a resilient and sustainability future for all, have been widely adopted within the global community to guide the sustainable development process across all pillars environment, social, and economic. SDGs have been utilised throughout this RDR Plan to demonstrate the linkages between the region challenges, opportunities, actions, and the resilience and sustainable future pathways. Read more: https://sdgs.un.org/goals

Resilience Opportunities

Leveraging natural landscapes

Our region's rivers, mountains, parks, and wildlife areas provide opportunities for cultural connection, recreation, conservation, and tourism. Recognising the environmental and cultural benefits of our environment is key in water allocations. Community feedback highlights ecosystem health and First Nations involvement in water management are crucial. Key aims are to support environmental conditions and encourage agricultural productivity, conserve water resources, create open leisure spaces, and build upon tourism opportunities. Proximity to airports and transport hubs strengthens local nature-based and eco-tourism opportunities.

Transport connectivity

The region is a well-connected area, with transport networks linking us with rural and urban NSW. Bathurst Regional Airport and NSW Train network play a major role in building local nature-based, eco-tourism, and agritourism opportunities, including nut farming, truffle farming, and horticulture. Leveraging the wealth of cool climate wineries, historical sites, nature reserves and national parks provide further tourism opportunities to boost other industries. Parkes Special Activation Precinct (Parkes SAP), combined with the Inland Rail (when completed) will provide rail access to Melbourne and Brisbane, may encourage supply distribution to larger cities, and could attract new business to the region. Improved transport connectivity facilitates a unique blend of tranquil regional lifestyle with connections to larger cities, building local economy, localised supply chains, and enhanced economic resilience.

Education, information, and communication

Dissemination of clear information is necessary in improving drought impact understanding. Utilising local connections and opportunities provided by local higher education institutions and vocational training makes use of existing infrastructure to provide upskilling and training opportunities. Mental health services, farm assistance skills, and cultural immersion training were particularly favoured by the community.

Industry and economic diversity

Diversifying our economy creates opportunities for agriculture and agriculture-related industries to diversify their income and retain employment during drought times. Energy transition opportunities exist within Lithgow's mining community. Direct and indirect support should be provided (such as business diversification training, cashflow management, and clear actions. Interventions providing objective views on existing farming affairs and required responses).

Relevant and context-informed support and services

Stakeholder-relevant and varied support is important, such as culturally sensitive mental health care. Greater communication and clear messaging on available services, their purpose, and application processes should be accessible to a broad audience. Establishment of local community champions to improve education and community cohesion would bridge Council and community. Financial subsidies and land management assistance would also ensure environmental resilience across the land.

Retaining youth

Difficulty retaining younger populations across our region has impacted our viability. Leveraging existing opportunities within the region should aid in retaining young people. Remote working arrangements, education, training, and jobs would further attract young people. The provision of regular wellbeing courses and face to face services targeting youth were also raised by community.

Diversification of water supply

Diversified water supply can reduce community vulnerability during droughts. Purified recycled water is generally supported across our community. Asset mapping and water resource capacity planning across vegetation, agriculture production, and population were noted avenues for drought success. Funding plays a significant role here, particularly concerning water efficiency, availability, and supply.

Mental health support

Accessible, timely, local support should be harnessed across the region. For farmers, this should be tailored to on-farm/site visits to reduce travel barriers. Improving the accessibility of existing mental health support services aims to improve positive outcomes and reduce isolation. Facilitating 'mental health by stealth' events like markets or barbeques are also recommended to reach people less inclined to access support. Existing social infrastructure provides opportunities for low-cost events to encourage social connection across our community.

06

Our Drought Resilience Journey

The Program Logic in Figure 6.1 describes our drought resilience journey starting from a shared vision and strategic objectives and goals to arriving at specific actions and the desired short-term and long-term outcomes. Reliance on external support and funding will be critical, especially during times of immense drought stress.

Figure 6.1: BLO RDR Plan Program Logic

Vision

For Bathurst, Lithgow, and Oberon, drought resilience means thriving despite ongoing water adversity. Our region recognises its reliance on water and prioritises water security. Our region is welcoming, values education, and is deeply aware of drought challenges. Equipped with the right knowledge and tools the region will navigate dry times, by remaining connected and generating prosperity across economic, environmental, and social fronts. Together, the region stands united, turning today's adversity into tomorrow's strength.

Strategic Priorities

Economic Resilience	Environmental Resilience	Social Resilience
Ensure our communities have the skills and tools they need to remain resilient and financially stable in a changing world.	Promote environmentally conscious behaviours in community, business and industry that protect our unique natural assets to ensure they remain resilient for future generations.	Fortify our existing social capital and attract a diversity of people to our region to ensure we remain mentally and socially resilient during times of hardship.

Goals

Economic Resilience	Environmental Resilience	Social Resilience
+ Enhance education on drought resilience and sustainable business practices. + Promote awareness of, and support for, the application of available financial support and planning. + Facilitate improved opportunities for education and upskilling to cater to the needs of the region. + Provide financial support and services aligned with the specific needs of our community. + Promote networking and collaboration among local industries and businesses.	+ Protect and build climate resilience in our natural assets. + Establish harmonious coexistence with the natural and agricultural environment, with limited aesthetic value lost. + Promote sustainable and regenerative farming practices. + Maintain water availability despite ongoing restrictions. + Ensure efficient water management and resilient infrastructure in times of drought.	+ Strengthen community connections to provide support during times of adversity. + Build the capacity of individuals, community groups, and services to take ownership of drought resilience. + Provide accessible training and capacity building tailored towards drought resilience. + Promote honesty regarding mental health and community wellbeing during times of adversity. + Enhance local and timely mental health support services across our region. + Encourage visitation and relocation to the region.

Actions

+ Enabling Agritourism through the Provision of Clearer Processes and Local Guidance.
+ Improving Consistency of Approach to Drought Resilience by Adopting Water Conservation Policies within Council.
+ Improving the Resilience of Landholders via Land Management Practices and Opportunities.
+ Improving Landholder's Mental Health by Enhancing Awareness and Uptake of Drought Resilient Support Services and Events.
+ Promoting Water-Efficiency Practices within the Community via School Children as Young Agents for Change.
+ Improving Adoption of Water Use Practices through Community Knowledge Sharing.
+ Fostering an Ecosystem of Drought Resilient Support and Best-Practice across the Region.

Short Term Outcomes (≤ 4 years)

Economic Resilience	Environmental Resilience	Social Resilience
+ Improving the diversity of farm incomes provides landholders with alternative revenue streams, enhancing their economic resilience through sustainability practices on-farm, and promote agritourism business development. + Skill development initiatives associated with agritourism enhance community and landholder adaptability to changing economic landscapes and provide new avenues for employment. + Reduced disruptions of business operations and therefore reduced economic losses. + Business owners actively pursue opportunities to adopt better financial planning, income diversification and utilisation of available grants, rebates, and financial support to increase financial security of their business pre-, during, and post-drought. + Reduced water consumption leads to reduced cost for households and expenditure for Councils.	+ Promotion of responsible water use and conservation to help preserve and protect local ecosystems during drought conditions, maintain water quality and reduce stress on water resources during drought. + Improved uptake of sustainable land management practices through awareness of available rebates, programs, and support. + Instils a sense of environmental responsibility and stewardship through drought education for school children, which can lead to a lasting positive impact on local ecosystems. + Improved natural flow of rivers and catchments and overall waterway health through biodiversity indicators such as population ecology of fish species. + Potable water consumption has reduced as a result on implementing water saving measures.	+ Agritourism contributes to the preservation of cultural identity. + Improved water management practices helps to ensure a more reliable water supply for communities, reducing the risk of water shortages during droughts and enhancing public health and wellbeing. + Improved social connections across the community, with greater uptake and awareness of available support services offered across the region (both physical health, mental, and financial supports), build a strong sense of community, encouraging mutual support and shared experiences. + Improved awareness and transparency of support available, leading to empowered communities and individuals during times of distress through exchange of ideas, contributing to ongoing learning and development. + Building individual resilience contributes to the resilience of families, school communities and the wider community.

Long Term Outcomes (> 4 years)

+ There is a common understanding and a shared vision in the region to manage drought risks and build community drought resilience.
+ The region works collectively and in partnerships to build drought resilience across three main pillars.
+ Measures are implemented to limit impacts of drought and better respond to drought.
+ Stakeholders and communities actively share knowledge and take actions contributing towards drought resilience.

Monitoring, Evaluation, and Learning Refer to page 82.

Action Strategic Alignment

		Enabling Agritourism through the Provision of Clearer Processes and Local Guidance	Improving Consistency of Approach to Drought Resilience by Adopting Water Conservation Policies within Council	Improving the Resilience of Landholders via Land Management Practices and Opportunities	Improving Landholder's Mental Health by Enhancing Awareness and Uptake of Drought Resilient Support Services and Events	Promoting Water-Efficiency Practices within the Community via School Children as Young Agents for Change	Improving Adoption of Water Use Practices through Community Knowledge Sharing	Fostering an Ecosystem of Drought Resilient Support and Best-Practice across the Region
Bathurst	Bathurst Biodiversity Management Plan 2012	●	●	●		●		
	Bathurst Climate Change and Water Security Plan 2011	●	●	●		●	●	
	Bathurst Climate Change Position Statement		●	●		●		
	Bathurst Climate Change Response Framework 2020		●			●	●	
	Bathurst Community Strategic Plan 2022	●	●	●	●	●	●	●
	Bathurst Integrated Water Cycle Management Plan		●				●	
	Bathurst Regional Council Emissions Reduction Plan 2022		●	●				
	Bathurst Regional Council Updated Long Term Financial Plan 2023-2033	●	●	●	●	●	●	●
	Bathurst Urban Waterways Assessment Update 2014		●					
	Bathurst Urban Waterways Management Plans 2010		●					
	Drought Management Plan Bathurst 2014	●	●		●	●	●	
	'Water – Let's Make It Last' – integrated communication, engagement, education, and compliance program in Bathurst Regional Council	●				●	●	
	Vision Bathurst 2040: Bathurst Regional Local Strategic Planning Statement		●	●		●	●	

		Enabling Agritourism through the Provision of Clearer Processes and Local Guidance	Improving Consistency of Approach to Drought Resilience by Adopting Water Conservation Policies within Council	Improving the Resilience of Landholders via Land Management Practices and Opportunities	Improving Landholder's Mental Health by Enhancing Awareness and Uptake of Drought Resilient Support Services and Events	Promoting Water-Efficiency Practices within the Community via School Children as Young Agents for Change	Improving Adoption of Water Use Practices through Community Knowledge Sharing	Fostering an Ecosystem of Drought Resilient Support and Best-Practice across the Region
Lithgow	CENTROC Submission including Lithgow region Drought Proof Feasibility Study		●					
	Lithgow 2040 Local Strategic Planning Statement		●					
	Lithgow City Council Consequence Management Guidelines		●					
	Lithgow City Council Delivery Program 2022-2026 Operational Plan 2023-2024	●	●	●	●	●	●	●
	Lithgow City Council Development Servicing Plans for Water Supply and Sewerage 2018		●			●	●	
	Lithgow City Council Economic Development Strategy 2015	●	●	●			●	
	Lithgow City Council Strategic Asset Management Plan 2022-2032		●			●		
	Lithgow City Council Strategic Plan 2007		●					
	Lithgow Community Strategic Plan 2030	●	●	●	●	●	●	●
	Lithgow Destination Management Plan		●	●	●			
	Lithgow Emergency Risk Management Study 2014		●					
	Lithgow Emerging Economy Transition Plan 2023	●	●	●		●	●	
	Lithgow Land Use Strategy 2010-2030		●					
	Lithgow Local Emergency Management Plan 2021		●					
	Lithgow Long Term Financial Plan 2023-2032	●	●	●	●	●	●	●
	Major Projects and Programs 2023				●			
	Our Place Our Future – Lithgow City Council Long Term Financial Plan 2019-2029	●	●	●	●	●	●	●

		Enabling Agritourism through the Provision of Clearer Processes and Local Guidance	Improving Consistency of Approach to Drought Resilience by Adopting Water Conservation Policies within Council	Improving the Resilience of Landholders via Land Management Practices and Opportunities	Improving Landholder's Mental Health by Enhancing Awareness and Uptake of Drought Resilient Support Services and Events	Promoting Water-Efficiency Practices within the Community via School Children as Young Agents for Change	Improving Adoption of Water Use Practices through Community Knowledge Sharing	Fostering an Ecosystem of Drought Resilient Support and Best-Practice across the Region
Oberon	Oberon Community Strategic Plan 2019-2040	●	●	●	●	●	●	●
	Oberon Council Local Strategic Planning Statement 2040		●	●				
	Oberon Delivery Program 2022-2026	●	●	●	●	●	●	●
	Oberon Operational Plan and Long Term Financial Plan Report 2023-2024	●	●	●		●	●	●
	Oberon Water and Sewer Asset Management Plan 2020		●				●	
Bathurst, Lithgow, Oberon	Abercrombie Regional Economic Development Strategy – 2023 Update	●	●	●			●	
	Bathurst and Oberon Regional Economic Development Strategy 2023 Update			●			●	
	Bathurst and Oberon Regional Economic Development Strategy 2023 Update	●	●					
	Central NSW Regional of Council's Drought Issues Paper 2018		●				●	
	Environmental Sustainability Action Plan, Bathurst, Orange, and Dubbo		●		●		●	
	Lithgow Regional Economic Development Strategy 2023 Update	●	●	●			●	
	Macquarie-Castlereagh Regional Water Strategy 2020	●	●	●			●	
	What We Heard Report – Draft Greater Sydney Water Strategy		●				●	
NSW	20-Year Economic Vision for Regional NSW 2018		●		●			
	Extreme Events Policy		●					
	NSW Climate Change Adaptation Strategy		●				●	
	NSW Climate Change Policy Framework		●					
	NSW Drought Strategy: Managing and Preparing for Drought 2018		●		●			
	Local Land Services Managing and Preparing for Drought 2018		●					
	NSW Government Central West and Orana Plan 2041		●				●	
	NSW Water Strategy 2021		●	●			●	

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Australia	Australian Government Drought Response, Resilience, and Preparedness Plan 2019		●					
	National Drought Agreement 2018	●	●	●	●	●	●	●
	CSIRO Drought Resilience Mission – Progress Update 2022	●	●	●	●	●	●	●
Global	Sustainable Development Goal* 1 – No Poverty							
	Sustainable Development Goal* 2 – Zero Hunger							
	Sustainable Development Goal 3 – Good Health and Well-Being				●	●		●
	Sustainable Development Goal 4 – Quality Education			●		●		
	Sustainable Development Goal* 5 – Gender Equality							
	Sustainable Development Goal 6 – Clean Water and Sanitation		●				●	
	Sustainable Development Goal* 7 – Clean and Affordable Energy							
	Sustainable Development Goal 8 – Decent Work and Economic Growth			●				
	Sustainable Development Goal 9 – Industry, Innovation, and Infrastructure			●			●	
	Sustainable Development Goal 10 – Reduced Inequalities				●			●
	Sustainable Development Goal 11 – Sustainable Cities and Communities	●	●	●	●	●	●	●
	Sustainable Development Goal 12 – Responsible Consumption and Production		●	●			●	
	Sustainable Development Goal 13 – Climate Action					●		
	Sustainable Development Goal* 14 – Life Below Water							
	Sustainable Development Goal 15 – Life on Land	●		●				
	Sustainable Development Goal 16 – Peace, Justice, and Strong Institutions	●	●					●
	Sustainable Development Goal 17 – Partnerships for the Goals	●		●	●			●

**Actions have been developed to align with the three pillars of resilience, economic, environmental, and social. Sustainable Development Goals (SDGs) adopted by the United Nations align with these three pillars, acting as a blueprint for peace and prosperity across our planet and people both now and into the future. For homogeneity, challenges, opportunities, and actions have been linked to key SDGs to demonstrate the linkages throughout this RDR Plan. All 17 goals have been listed above, however, this RDR Plan only addresses a subset.*

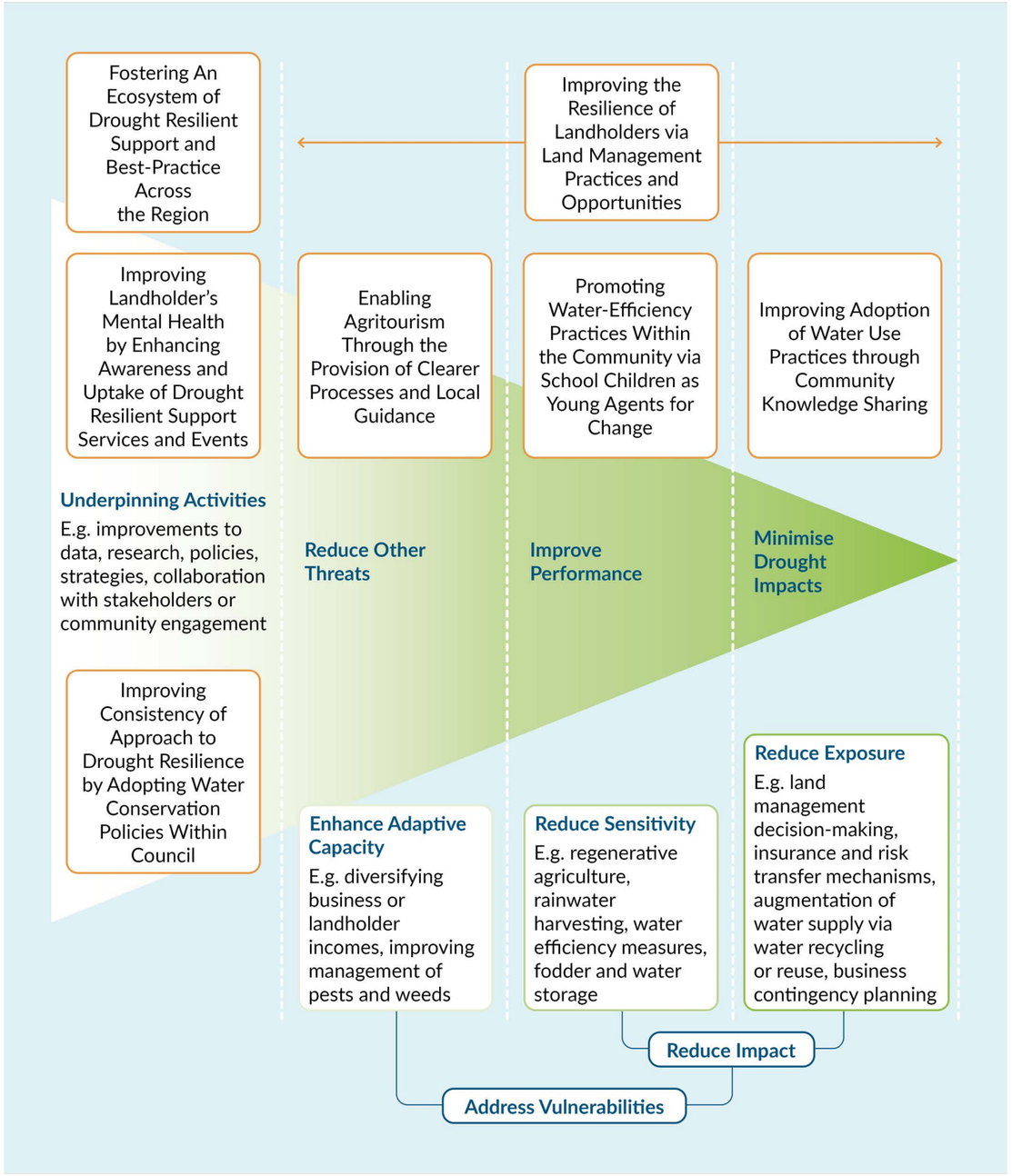
Action Pathways

Figure 6.2 demonstrates how the priority actions of this RDR Plan locate on the impact pathway spectrum. The impact pathway spectrum represents different activities that may help build resilience to drought in the region and range from supporting or underpinning activities, enhancing adaptive capacity, improving performance, and reducing exposure. The actions developed in this Plan are spread across this spectrum to provide a comprehensive approach to address drought vulnerabilities and reduce drought impacts. The actions were developed, evaluated and prioritised during stakeholder and community engagement program using the approaches discussed in The Process section.

In subsequent sections, action plans for the seven actions developed, are documented and include information to support funding endeavours, and recommendations for implementation. This includes action rationale, high-level estimated costs and implementation timeframes, implementation steps, potential benefits and supporting actions.

Note that the information provided within action plans, particularly timeframes and costs, are intended as preliminary estimates, to be further developed in subsequent phases following the completion of this RDR Plan. External support and funding will be critical for this work, especially during times of immense drought stress.

Figure 6.2: BLO Drought response to Drought Resilience (Impact Pathway Spectrum)



Adapted from the National Environmental Science Program, Climate Systems, Interventions for Biodiversity Conservation

Enabling Agritourism through the Provision of Clearer Processes and Local Guidance

Spheres

Economic Social

SDG Alignment

Rationale

Drought can create extreme financial implications for landholders, causing distress and threatening the long-term sustainability of farming enterprises. Mitigating this risk involves the diversification of on-farm income, not only to improve the financial position of landholders in advance of drought, but also provide essential supplementary income as drought impacts become evident. Recognising this, the region is well placed to capitalise on local tourist attractions, such as Jenolan Caves, the Zig Zag railway, and Mayfield Gardens, along with its proximity to the Blue Mountains and Sydney. These attractions draw visitors, creating a market for agritourism ventures.

In 2022 and 2023, the NSW State government proactively addressed the growing field of agritourism through substantial planning changes and the publication of a guide to agritourism planning approvals. Destination Central West is also developing materials to support the expansion of agritourism in the region. However, intricacies interfacing with local planning requirements are complex and can involve navigating specific timeframes, costs, and challenges.

Engagement sessions with stakeholders have highlighted challenges encountered by landholders in establishing agritourism ventures. These challenges include understanding the activities permitted and approvals required, navigating local government points of contact, and other legislation or guideline considerations. A lack of awareness regarding the magnitude of requirements was identified as a key barrier in setting realistic expectations for landholders pursuing this initiative.

In response, this action would complement the existing State and Regional resources through the development of tailored guidance in the approvals and permits necessary to build and maintain an agribusiness, for landholders within each LGA. Delivered by an external contractor with expertise in planning and agritourism, materials may include a flowchart and toolkit. These resources would contain regulatory and technical considerations such as fire protection, accessibility, wastewater systems, food handling and hosting events, with the ultimate objective to improve the accessibility of information for agritourism ventures to be fully compliant with relevant regulatory requirements.

An integral aspect of this initiative is building the capacity of Council staff. This envisages the creation of internal flowcharts for each Council, consideration of a fast-track approval process, and the identification of internal subject matter experts to champion agritourism within Councils. Subsequent steps are poised to further the integration of agritourism within the local tourism network, thereby enhancing success rates and positively contributing to the region's tourism offerings.

This action aims to modify the existing regulatory system, providing a clearer framework for landholders seeking to access finance, approvals, and permits.

Implementation Timeframe

6 months.

Estimated Costs

Total Cost: $80,000 - $120,000.

Action Owner

Bathurst Regional, Lithgow City, and Oberon Councils. Project outsourced to third-party contractor.

Stakeholders

+ Internal Council staff.
+ Landholders and Farming representative bodies.
+ Destination Central West.
+ Regional tourism bodies.

Steps for Implementation:

1. Establish a permanent agritourism steering committee within each Council by identifying subject matter experts willing to champion agritourism.
2. Develop and issue request for quote (RFQ) for a contractor to deliver this action across the three LGAs.
3. Recruit third-party contractor who would be responsible for Steps 4 – 11.
4. Map State, Regional, and Local legislation to determine activities permitted within each LGA, and any potential conflicts or areas of ambiguity. This step may draw and build upon existing resources available from state and regional departments.
5. Review existing State and Regional Agritourism resources to identify gaps in knowledge and resources at the local Council level to support the adoption of permitted agritourism opportunities.
6. To build upon the findings from Step 5, engage with landholders who have recently pursued agritourism ventures to identify challenges and support required for future ventures. Engagement should also be utilised to develop local case studies of agritourism adoption, communicating opportunities and benefits.
7. To address gaps in knowledge and build internal capacity, facilitate engagement with internal Council staff to identify roles, responsibilities, relevant legislation, and required processes around agritourism.
8. Utilising the information gathered from previous Steps 4 to 7, develop bespoke collateral to guide and inform those wanting to adopt or engage in agritourism practice. This will be targeted to landholders and internal Council staff within each LGA. Collateral may include local case studies (see Step 6) and may also include frequently asked questions (FAQs) and flow-charts.
9. Liaise with relevant external stakeholders, including but not limited to Destination Central West, and the Rural Fire Service, to ensure collateral developed in Step 8 will link landholders to all relevant approval agencies and entities capable of supporting an agritourism venture.
10. Establish an agritourism participant survey template to routinely identify lessons learnt from those who are both successful and discontinue their agritourism venture.
11. Conduct capacity building events with landholders to share project collateral and provide access to one-on-one mentoring.
12. Destination Central West to utilise the survey developed in step 10, to check-in with participants at regular intervals, to develop lessons learned and inform future projects, and inform the optimisation of support.

KPIs

+ Establish steering committee with each Council.
+ Flowcharts, FAQs, and support materials developed for internal and external use for each of the Council LGAs.
+ Number of engagement and capacity building activities held with Council staff, external stakeholders, and landholders.
+ Number of case studies developed.
+ Survey developed.

Resilience Dividend

Economic

+ Improving the diversity of farm incomes provides landholders with alternative revenue streams, enhancing their economic resilience.
+ Increasing tourism offerings within the Region to increase tourism visitation and local spending.
+ Skill development initiatives associated with agritourism may enhance community and landholder adaptability to changing economic landscapes and provide new avenues for employment.

Environmental

Supplementary income can help finance complementary sustainability practices on-farm to maintain the successful operation of the venture, building capacity for environmental stewardship.

Social

Agritourism often involves showcasing local culture and heritage which can contribute to the preservation of cultural identity

Supporting Actions

Destination Central West to continue supporting the adoption of agritourism ventures across the region.

Next Steps

+ Pilot an agritourism coordinator to connect agritourism providers, small and large tourism businesses, and local and regional tourism bodies, share knowledge, build skills, and promote value-adding activities such as agricultural products and experience development.
+ Develop tourism collateral, such as sample itineraries and experience trails, to cross promote and link agritourism ventures into a holistic, region-scale tourism offering.

Improving Consistency of Approach to Drought Resilience by Adopting Water Conservation Policies within Council

Spheres

Environmental

SDG Alignment

Rationale

The findings from the engagement process underscored the diverse maturity levels among the Councils concerning the integration of policies geared towards bolstering drought resilience, specifically focusing on water management (conservation) practices within public spaces and urban planning decisions. For example, some Councils mandate new developments to harness stormwater for reuse in public open spaces, while others stipulate minimum requirements for residential or industrial projects to capture onsite water. Additionally, certain Councils establish thresholds for the adoption of water-sensitive urban design infrastructure.

It's evident that implementing policies and practices for drought resilience is a crucial step in shedding light on the challenges associated with drought management and emphasising the community's role in fortifying regional drought resilience. Although there's a shared aspiration among the Councils to enhance and establish a best-practice approach, the requisite research to evaluate similar Councils' policy frameworks, assess local feasibility, and garner internal support is a resource-intensive undertaking.

Acknowledging the constraints and extensive responsibilities within Councils, the proposed strategy involves engaging a consultant to meticulously examine and pinpoint gaps in existing water management and drought strategies within Bathurst, Lithgow, and Oberon Councils. Simultaneously, the consultant would scrutinise policies from comparable regional councils, particularly those within the Central NSW JO, to identify suitable approaches for implementation in the respective Council areas. The consultant would spearhead this action, overseeing the necessary engagement processes to gauge and secure buy-in, ultimately crafting recommendations for the subsequent phases of the initiative.

This action aims to modify the existing regional system by providing an uplift in Council water management practices. Proper implementation of water sensitive policies and practices will progressively transform the system (with time), working to build water efficiency practices across the community.

Implementation Timeframe

8 months.

Estimated Costs

$80,000 - $100,000.

Action Owner

Bathurst Regional, Lithgow City, and Oberon Councils. Project outsourced to third-party contractor.

Stakeholders

+ Bathurst Regional, Lithgow City and Oberon Councils.
+ Central NSW Joint Organisation (JO).

Steps for Implementation

1. Determine scope inclusions and exclusions (or scope of works (SOW)) and budget based on extent of review determined to be suitable.
2. Develop and issue RFQ for a contractor to deliver this action across the three LGAs.
3. Recruit third-party contractor who would be responsible for steps 4 – 11.
4. Review, map, and establish a baseline for each Councils' current approach to drought resilience within the sphere of water management (use and conservation).
5. Review policies of Central NSW JO member Councils, and other relevant regional Councils to determine a benchmark for water management in terms of drought resilience in the region.
6. Conduct gap analysis between the baselines established for Bathurst, Lithgow and Oberon, and the regional benchmark determined in Step 5. Highlight critical vulnerabilities based on gap analysis.
7. Identify existing policies or practices from Central NSW JO member Councils to address gaps identified in Step 6 for each Council area.
8. Determine applicability of policies to relevant Council areas.
9. Conduct a multi-criteria assessment (MCA) to evaluate the policies and practices to bridge gaps identified for each Council area. MCA to be based on a comprehensive set of criteria, including social, environmental, and economic factors.
10. Engage with Council leadership and relevant staff to gauge appetite for adoption of identified policies and practices and determine agreed pathways for improvement upon existing approaches.
11. Make recommendations for the next steps in the adoption of policies and practices. This will include priorities, estimated resources and costs, and timeframes.

KPIs

+ Engagement targets a range of stakeholders to provide appropriate advice to the adoption of policies and practices.
+ Number of policies reviewed from comparable regional councils.
+ Number of internal stakeholders (within Bathurst, Lithgow, and Oberon Councils) who express support for the proposed policies.
+ Level of alignment of recommended improvements with established regional benchmark
+ Number of exemplar water management policies and practices carried through for adoption.

Resilience Dividend

Economic

Reduced disruptions of business operations and therefore reduced economic losses.

Environmental

Promotion of responsible water use and conservation to help preserve and protect local ecosystems during drought conditions, maintain water quality, and reduce stress on water resources during drought.

Social

Improved water management practices, which can help ensure a more reliable water supply for communities, reducing the risk of water shortages during droughts and enhancing public health and wellbeing.

Supporting Actions

As an outcome of the baseline established for each Council area, share water management (use and conservation) practices and policies adopted, between Bathurst and Oberon and Lithgow to provide region-wide capacity building in drought resilience.

Next Steps

+ To align with the adoption of water conservation and usage practices, undertake a Water Augmentation Feasibility study. This may assess existing sewerage treatment plants and other opportunities for water recycling and/or stormwater harvesting.
+ This action will be supported by the undertaking of a carrying capacity study. Involving the mapping of water asset and resources against growing populations, this study will provide improved clarity around the capacity within the region. This will provide an understanding of the region's ability to support the growing resource needs of industry, and community, based on existing and projected water resource availability. This step will help to inform better decision-making and investment across the region.

Improving the Resilience of Landholders via Land Management Practices and Opportunities

Spheres

Economic Social

SDG Alignment

Rationale

This action comprises three core components, each intended to improve the resilience of the region's landholders in the face of drought and other disasters. The three components of this action were raised through stakeholder consultation and focus on knowledge exchange and uptake, enhancing awareness, and implementing practical, physical strategies.

Part A: Provide landholders with on-the-ground exposure to drought-resilient farming approaches

Stakeholders recognise the value of learning from practical, on-farm experiences. Peer to peer learning and farm tours have been identified as highly effective methods for enhancing awareness and encouraging the adoption of drought-resilient farm management techniques. Part A is intended to be a platform to share approaches for on-farm drought-resilience to landholders.

Participants will embark on a guided bus tour that will take them to an assortment of farms selected for their successful implementation of drought-resilient practices. These farms will serve as real-life, practical examples of how to mitigate the impacts of drought. Examples may include drought containment paddocks, fodder storage, on-farm water storage, capitalising on natural capital. During the farm tours, participants will have the opportunity to witness and learn about various drought-resilient techniques and strategies in action. Farmers will provide insights, explanations, and demonstrations of their chosen approaches.

To support ongoing learning and upskilling, participants will receive take-home fact sheets, FAQs, and resource lists. These materials will serve as valuable references, allowing participants to apply what they have learned to their own farming practices.

Part B: Feral pig management

Drought is an inherent aspect of the climatic cycle for farmers, and its impacts can be challenging to mitigate. However, many other factors, such as pest animals like feral pigs, significantly exacerbate the environmental and financial vulnerabilities of farming enterprises. The relentless predation by pigs, particularly during lambing season, can lead to distressingly low lambing success rates, sometimes plummeting below 10%. Pigs are also destructive on the landscape causing environmental degradation and can be carriers of exotic diseases that harm livestock and wildlife. Reducing feral pig numbers is paramount to bolstering a farmer's overall success in building resilience and adaptability in the face of drought and other challenges.

Part B of this action aims to assess the current demand for pig traps and make provisions for additional traps to be secured if necessary. These would be freely accessible to farmers, comprising of prefabricated traps, or fencing materials to construct traps, along with the necessary instructions. In parallel, an evaluation will be conducted to understand the level of awareness of existing services, and efforts made to promote services if deemed necessary.

This initiative is aimed to decrease the financial burden on landholders by reducing the need for costly outlays associated with feral pig management. This ideally will help to alleviate the extensive damage caused to farming enterprises and the environment. Further, providing landholders with the resources to take control over feral pig management, ensures ownership and decision-making authority remains in their hands.

Part C: Carbon farming workshops

Numerous landholders in the region are confronted with multifaceted challenges in making or maintaining the viability of their farming enterprise, even before drought conditions occur. These may manifest in various ways, such as landholders approaching retirement with no apparent succession plans in place. Or farmers grappling with the occurrence of widespread weed invasions on their properties. These complex challenges can be both mentally and financially draining.

Carbon farming has emerged as a promising and sustainable solution for landholders facing challenges in maintaining viable farming enterprises. Carbon farming may provide a feasible exit strategy for landholders by generating revenue from their land, while allowing them to remain on their farm, connected with their community.

This action will equip landholders with an understanding of carbon farming, enabling them to make informed decisions for their unique circumstances. This will be done through a series of workshops or forums, reinforced with take-home fact sheets. Information will be drawn from credible and independent sources and will outline the benefits and challenges associated with carbon farming.

It is noted that there are grants and support services available that can significantly aid landholders in their journey towards carbon farming aligning with Part C of this action. These resources should be actively leveraged to ensure that landholders have access to the necessary support, guidance, and financial assistance, ultimately enhancing their capacity to embrace carbon farming as a sustainable and economically sound endeavour.

These initiatives aim to maintain and modify the existing rural landscape, managing feral species, thereby reducing further environmental degradation. Upskilling farmers will help modify behaviour, building drought-resilient farming practices into daily use.

Implementation Timeframe

Part A

Drought Resilient Farming 4 to 5 months.

Part B

Optimise pig-trapping resources 8 months (+ ongoing provision of service).

Part C

Carbon farming 6 months.

Estimated Costs

Part A Total Cost: $23,000.

+ Management, engagement, and coordination of action: $16,000.
+ Practical resources and materials (bus, information materials, etc.): $7,000.

Part B Total Cost: $13,000 - $50,000.

+ Engagement and evaluation of existing resources and awareness: $10,000.
+ Traps (if required):
  - Prefabricated traps - $2,000 per trap.
  - Fencing trap materials - $1,000 per trap.
+ Resources: $3,000.

Part C Total Cost: $19,000.

+ Research, engagement, and coordination of action: $14,000.
+ Workshop/forums and materials: $5,000.

Action Owner

Local Land Services (LLS) (Biosecurity and Agriculture Teams) or Landcare.

Stakeholders

+ Local Land Services.
+ Agricultural equipment and service suppliers.
+ NSW Parks and Wildlife Services.
+ NSW Forestry.
+ Central NSW JO.
+ Upper Macquarie County Council.

Improving the Resilience of Landholders via Land Management Practices and Opportunities *continued*

Steps for Implementation

Part A: Drought Resilient Farming

1. Issue expression of interest (EOI) for farmers willing to participate with nominated practices (within stock/station agents, agronomists, radio, social media etc.).
2. Evaluate practices of farmers who expressed interest in participating to ensure there is a broad spread of examples available to contribute to wide-spread learning.
3. Organise a series of bus tours (depending on the number and location of farmers subject to geographical spread, timing, and logistics).
4. Advertise free farm tours through a multitude of avenues including stock/station agents, agronomists, radio, social media etc.
5. Develop take home factsheets, FAQs, and list of available resources and grants. This will utilise the knowledge of the farmers showcasing their farms, in addition to desktop research.
6. Conduct farm tours.
7. Issue surveys or evaluation forms to participants to gauge effectiveness and satisfaction of tours.
8. Repeat (particularly if drought conditions change) to capture landholders when drought-management is most topical and showcasing solutions in the midst of drought to demonstrate their effectiveness.

Part B: Feral pig management

1. Develop a survey for landholders within Bathurst, Lithgow, and Oberon LGAs to gauge awareness of pig trapping services (including informational workshops, videos, and traps) within LLS, and determine the need for them in the region.
2. If feedback indicates more awareness is needed, develop materials to communicate services to landholders across the region. Advertise services through a multitude of avenues including stock/station agents, agronomists, radio, social media etc.
   + Materials should communicate how to access service, highlight service is available at no cost, points of contact, how to arrange, timelines, etc.
   + Utilise existing materials developed by LLS including instructional videos, to improve understanding and uptake of service.
3. Based on the survey, evaluate current need versus current supply, to determine whether additional traps are needed.
4. Should this indicate additional traps are needed, issue request to purchase additional traps, based on available budget.
   + Obtain quotes to enable the purchase of the pig trap materials or commission fabrication of traps.
   + Develop a 1-page user guide to accompany the traps.
   + Promote availability of traps via local media and landholder-facing businesses.

Part C: Carbon Farming

1. Conduct thorough research and assessment of the available support services, and materials that are applicable to the region surrounding carbon farming initiatives and research.
2. Collaborate with local knowledge holders, such as the Upper Macquarie County Council, LLS, and Rural Financial Planners, to identify landholders who are facing challenges, such as financial struggles or weed infestations.
3. Establish clear criteria for identifying those in need and create a systematic approach for outreach to landholders.
4. Invite suitable landholders identified to participate.
5. Organise a series of both online and in-person forums to promote carbon farming as a viable solution. Ensure that the forums are accessible to a wide audience, utilising technology for virtual participation, and choosing convenient physical locations for in-person events.
6. Identify and invite knowledgeable speakers and facilitators with expertise in carbon farming to present information in an engaging and understandable manner. Ensure that this information is tailored to the needs of the region.
7. Host a series of online and in-person forums to promote carbon farming as an option.
8. Develop a comprehensive fact sheet or take-home resource that condenses key information presented during the forums. This resource should include details on the benefits and challenges of carbon farming, steps for implementation, and contact information for support services. Design the material in a user-friendly format that can serve as a quick reference guide for landholders.

KPIs

Drought Resilient Farming

+ Number of landholders expressed interest in participating.
+ Number of attendees on bus tours.
+ Proportion of positive feedback on tours.

Pig Traps

+ Number of landholders utilising traps.
+ Number of landholders aware of services for pest control.

Carbon farming

+ Comprehensiveness of support and services identified for availability.
+ Number of landholders identified to participate in action.
+ Number of landholders attending workshops and forums.

Resilience Dividend

Economic

+ Successful practices contribute to reduced costs associated with drought mitigation (e.g., reduced volume of supplementary feed or water needed).
+ Drought-resilient practices and pest control can contribute to enhanced farm productivity, building resilience for drought-conditions, and reducing economic distress during this time.
+ Provision of pest control approaches can reduce ongoing land maintenance costs, reducing financial burden in times of drought.
+ Diversification of, or provision of supplementary on-farm income.

Environmental

+ Conservation of water and resource use through efficient practices.
+ Sustainable farming, land and pest management practices can help protect local ecosystems and wildlife, and reduce environmental damage.
+ Mitigation of risk of exotic diseases spreading to livestock and wildlife.
+ Contribution to carbon storage, climate mitigation, and protection of biodiversity.

Social

+ Acquisition of new skills and techniques to effectively manage drought, enhancing confidence and preparedness.
+ Contributes to social connection and sense of community, encouraging mutual support and shared experiences.
+ Networking through exchange of ideas, contributing to ongoing learning and development.
+ Empowering decision-making of landholders by providing appropriate tools and strategies can result in positive mental health outcomes.

Supporting Actions

Bathurst, Lithgow and Oberon Councils to promote landholder events on the Council event pages to increase visibility and awareness.

Next Steps

+ Advocate for additional funding to manage weeds and reduce financial strain on farms. This may begin with better weed management of roadside weeds to reduce threats diminishing landholder resilience.
+ Secure funding for engagement of landholders to assess their ongoing needs for drought resilience and opportunities to provide further support across the region. This may include provision of financial and succession planning training.

Improving Landholder's Mental Health by Enhancing Awareness and Uptake of Drought Resilient Support Services and Events

Spheres

Social

SDG Alignment

Rationale

Awareness of support / mental health during periods of drought.

Persistent droughts, combined with compounding stressor events, place significant stress on the community, particularly farmers.[89, 90] Health is often neglected, with time and resources put into the farm.[91] Feedback found people are unsure where to go for assistance or believe support is not available. However, there are a multitude of service providers in the government, not-for-profit and private sector addressing drought impacts, such as mental and financial strain, and preparedness (financial planning, land management, etc.).[92]

Part A: Magnet

Community spirit and the willingness to help one another shine through. However, landholders are often stoic and hesitant in seeking help, often framing conversations with service providers as *"I'm just calling for a mate."* [93,94] These behaviours can be harnessed by providing a fridge magnet, titled "Help for your mate or neighbour" (or similar). Various formats (booklets, lists, online resources) were explored, with the community noting a magnet as likely being kept, being available later on when support was needed most. The simplicity of the magnet content also responds to those who have limited written or digital literacy.

Each magnet aims to promote local service providers who understand local conditions and challenges local landholders face. A sentence description of services and contact details, with approximately 10-20 locally based service providers is envisioned, distributed to agricultural suppliers, community venues, post offices, and other landholder-facing entities. This leverages the Regional Support Network collaborative. Rural Adversity Mental Health Program (RAMHP), in conjunction with the Network, will design, print, and distribute magnets to participating businesses using in-kind resources.

Part B: Events Fund

To overcome reluctance in receiving assistance, the community identified the need for events facilitated by mental-health service providers. These events are carefully designed to explore topics that resonate with the interests and values of landholders, thereby enhancing their appeal and encouraging attendance. The choice of a neutral venue, ideally situated in small regional villages, offers a conducive environment for professionals from mental, financial, and land management support services to engage directly with landholders. To facilitate the success of these events modest funding is required to cover ancillary costs. This includes expenses such as catering, children's activities, and equipment hire, transforming the event into an enjoyable and engaging day out. This initiative serves as an opportunity for individuals to temporarily step away from their farms, fostering socialisation and the establishment of connections. These connections contribute to the formation of informal support networks that prove invaluable during periods of drought. The proposed events are designed to occur strategically—both before, during, and after droughts—ensuring a continuous and resilient support structure.

To enact this vision, a dedicated funding pool is envisioned. This pool would be accessible to fund events and activities led by drought-related service providers possessing the necessary capacity and capability. The primary goal of these community events is to promote inclusivity across a wide spectrum of stakeholders. The attendance of eligible service providers would be treated impartially, ensuring no preferential treatment for any specific offering. It is suggested that the participation and facilitation of events be offered at no cost by the participating service providers. This approach maximises the availability of resources for the essential elements that contribute to the success and impact of these community events.

This action aims to modify the existing mental health landscape by building a collaborative approach to support. Building daily awareness of support-services available to landholders will work to modify feelings of isolation, normalising mental health conversations every day of the year, during drought or otherwise.

Implementation Timeframe

+ Part A: 3 months (for magnet production).
+ Part B: 6 – 12 months of ongoing annual events.

Estimated Costs

$75,000.

+ RAMHP wages: $5,000 (in-kind contribution).
+ Magnet design, production, and distribution: $10,000.
+ Events fund: $60,000.

Action Owner

RAMHP in conjunction with Bathurst Oberon Lithgow Regional Support Network Collaboration.

Stakeholders

Landholders including farmers, agricultural manufacturers, and other community members.

Steps for Implementation

Part A:

1. Establish a project committee within RAMHP and the regional support network.
2. Establish priority list of specific services landholders may require and identify respective providers for engagement, ensuring a diverse range of services are represented.
3. Collaborate with identified service providers to gather one-line explainers, and contact details.
4. Design the fridge magnet content ensuring it is clear, concise, and caters to those with limited written or digital literacy. Consider incorporating QR codes and/or websites for other relevant support (e.g., DPI Drought Hub).
5. Identify local businesses, organisations, and community venues where magnets could be displayed for collection by landholders. Ensure these entities understand the purpose and importance of the initiative.
6. Obtain quotes, print, and distribute magnets.
7. Where necessary, periodically review content of magnets to ensure accuracy of service providers and contact details.

Part B:

1. Develop a comprehensive plan outlining the types of events, topics, and activities that align with the interests and values of landholders. Select overarching topic of interest to landholders as the pilot event.
2. Collectively create eligibility criteria to determine what activities and elements are eligible for the event support funding.
3. Engage with mental-health service providers to seek commitment to participation in events, tailored to the agreed topic.
4. Map out a calendar of events ensuring geographical coverage and a mix of events to cater towards different landholder cohorts (e.g., intergenerational farmers, hobby farmers, mixed enterprises, farmers approaching retirement etc). Consider strategic dates throughout the year.
5. Coordinate with local businesses and community organisations to establish logistics such as catering and equipment hire.
6. Advertise events across the region.
7. Conduct events, making sure magnets are available at each event.
8. Conduct a lessons-learned process with facilitators, attendees, and community leaders. Which events worked well, identify service gaps, or needs and feedback to relevant agencies/entities to further improve service provision.

Improving Landholder's Mental Health by Enhancing Awareness and Uptake of Drought Resilient Support Services and Events *continued*

KPIs

+ Number of magnets created and distributed.
+ Number of participating entities in the distribution of the magnets including spatial spread.
+ Increased awareness of and social reach of the magnet.
+ Event success, as measured by number of people attending, social connections forged etc.
+ Increased uptake of services (mental, financial, etc.).
+ Number of events held and participant numbers.
+ Community feedback on magnets and events.
+ Number of media stories relating to the events.

Resilience Dividend

Economic

Increased financial planning and viability of landholders.

Environmental

Improved uptake of sustainable land management practices through awareness of available rebates, programs, and support.

Social

Improved social connections across the community, with greater uptake and awareness of available support services offered across the region (both physical health, mental, and financial supports).

Supporting Actions

+ Continued operation of the newly established Regional Support Network to provide a regular forum to coordinate support actions.
+ Ongoing business as usual initiatives such as mental health first aid training events as they arise.

Next Steps

+ Advocate for this project (magnet and events) to be in perpetuity given ongoing preparedness and improving the resilience of landholders during good times so they are less impacted by future drought. This would also address the missing link between service provision and landholders being aware of and willing to utilise services. This is particularly pertinent given the ongoing diversity and change in service delivery and the ever-changing nature of service availability.
+ Advocate for more resourcing of services delivered on farm.

Promoting Water-Efficiency Practices within the Community via School Children as Young Agents for Change

Spheres

Social Environmental

SDG Alignment

Option 1 – Green Day

Rationale

A near universal theme during engagement was for better awareness and education on the effects of drought and the actions individuals can take to reduce their water consumption. Children were identified as key to this process, with their strengths lying in their willingness to learn new things, and ability to act as conduits to influence the behaviour of their families.

Rather than commence a new program from scratch, Watershed Landcare's annual Green Day school event was identified to be replicated and run in our region. Green Day is an annual environmental expo, bringing together school-aged children, schools, educators, and the community to learn about a central topic (waste, water efficiency, etc.) through interactive and involved workshops and educational sessions.

This supports our local students benefiting from a well-run program, utilising established and effective approaches. Using this existing program also allows local Landcare groups to gain experience in the operation of this event. In subsequent years, local Landcare groups will have the capabilities to host the event with minimal assistance from Watershed Landcare.

This event would be the first of its kind for the Bathurst, Lithgow, and Oberon region and as a result, the region does not have established relationships and sponsorships to support the event. As such, funding for this action would be required.

This action is intended to serve as an investment in building resilience at a school level, where informed and proactive individuals, families, and communities are better equipped to adapt to drought conditions, minimise its impact, and work towards a more sustainable and resilient future.

This action aims to transform the region by educating an entire generation on the impacts of drought and efficacy of individual water conservation initiatives. By modifying existing programs already in operation outside the region, this action will work to build transformative change to young minds, thereby influencing their parents and those around them.

Implementation Timeframe

+ One year to establish the event within local schools.
+ Event to be established as an annual event.

Estimated Costs

$20,000.

+ $20/child for attendance.
+ Watershed currently pays a staff member (part time) to run the event, and they get 600 children.

Action Owner

Lithgow-Oberon Landcare Association and Central Tablelands Landcare in partnership with Watershed Landcare.

Stakeholders

Local Primary Schools (State, Catholic and private) and broader community.

Steps for Implementation

1. Issue expression of interest (EOI) across the region for the participation of local primary schools in the Green Day event.
2. Identify a group of schools within each Council area to act as a pilot for the first year of Green Day.
3. In collaboration with their Watershed colleagues, local Landcare groups are to assist in the development of a program of events for Green Day. Activities (such as workshops and interactive demonstrations) are to be centred around a drought- or water-efficiency theme across Bathurst, Lithgow, and Oberon Council area.
4. Send out event invites to identified local schools, including times, topics, activities, and responsibilities.
5. Host the event.
6. Establish a monitoring and evaluation process to evaluate the success of the event and conduct a lessons learned process with the view of repeating the event in subsequent years. This should include identifying local businesses and agencies who could contribute funding for future events.
7. Issue fun and interactive quizzes to assess success of adoption of water efficiency practices. This could explore the possibility of providing ways to improve if score is low, e.g., water time for the sprinkler system.

KPIs

+ Adoption of event within Bathurst, Lithgow, and Oberon Council areas.
+ Proportion of local primary schools that expressed interest in participating in the event.
+ Proportion of schools participating in the event.
+ Number of students who participated in the event.
+ Proportion of positive feedback from schools, teachers, students, and parents.
+ Adoption of water efficiency practices within homes.

Resilience Dividend

Economic

Reduced water consumption in households (potentially leading to reduced water bills).

Environmental

Instils a sense of environmental responsibility and stewardship, which can have a lasting positive impact on local ecosystems.

Social

+ Builds a more informed and prepared generation, capable of understanding the challenges of drought and taking proactive steps to mitigate its impacts.
+ Knowledge shared within family units, encouraging water-saving behaviours, and fostering culture and ownership of drought resilience.
+ Strengthen community bonds by involving local schools, parents, and local organisations, fostering a sense of shared responsibility for drought resilience.

Supporting Actions

+ Schools to encourage attendance at events and support ongoing learning through curriculum.
+ Watershed Landcare to share educational and event materials as example for the region.

Next Steps

+ Establish the event annually.
+ Maintain and continue to develop connections with local schools and organisations to participate in and contribute to the event.
+ Build on existing event to expand the benefits to classrooms and across the community. Similar to the Watershed Landcare's Green Day, explore opportunities to establish professional development sessions for teachers, additional school visits, and community-based workshops.
+ Investigate opportunities to expand event target audience to different age groups across the community. Event could be opened up to the wider community to invite cross-community learning and networking for new and existing residents.

Promoting Water-Efficiency Practices within the Community via School Children as Young Agents for Change *continued*

Option 2 – National Tree Day

Rationale

A near universal theme during engagement was for better awareness and education on the effects of drought and the actions individuals can take to reduce their water consumption. Children were identified as key to this process, with their strengths lying in their willingness to learn new things, and ability to act as conduits to influence the behaviour of their families.

Rather than commence a new program from scratch, the National Tree Day school event was identified to be adopted and run in our region. The National Tree Day is an annual event, bringing together school-aged children, schools, and educators to learn about key topics through a rotation of interactive and involved workshops and educational sessions. This may involve tree planting, agricultural talks, Aboriginal Heritage talks, bird watching, and geology walks. In doing so, these activities can be linked to the goal of drought resilience across the region, reaching social, environmental, and economic pillars.

In other council areas, this event is run with the support of a number of organisations, dividing responsibilities and involvement across an interactive team. This structure helps to establish a network between local organisations and builds support across the industry. This event would be the first of its kind for the Bathurst, Lithgow, and Oberon region, however, is a readily adopted event with councils across NSW and more broadly, Australia.

This action is intended to serve as an investment in building resilience at a school level, where informed and proactive individuals, families, and communities are better equipped to adapt to drought conditions, minimise its impact, and work towards a more sustainable and resilient future. It is possible to initiate this event in one of the three local Councils as a pilot, before using learnings to expand to the other two LGAs.

By investing in young minds, this action also aims to transform the system through education of the upcoming generation.

Implementation Timeframe

+ One year to establish the event within local schools.
+ Event to be established as an annual event.

Estimated Costs

Total Cost: $20,000 – $30,000.

+ Should third-party contractor be utilised, costs may increase.

Action Owner

Bathurst Regional Council to coordinate with support from Lithgow City and Oberon Councils in organisation and delivery.

This coordination role could be delivered by a consultant, should it be beyond the capabilities of Councils.

Stakeholders

+ Lithgow-Oberon Landcare Association and Central Tablelands Landcare.
+ Local Land Services.
+ Local environmental organisations or groups.
+ Local rotary groups.
+ Local Primary Schools (State, Catholic and private) and broader community.

Steps for Implementation

1. Establish LGA location for pilot test, or central location to run first event.
2. Issue expression of interest (EOI) across the region for participation of local primary schools in the National Tree Day event. This event is typically run across approximately two (2) hours, including lunch.
3. Identify a group of schools within each Council area to act as a pilot for the first year of National Tree Day.
4. Bathurst Regional Council coordinator or identified contractor to organise details of event in collaboration with other Councils. This may include:
   + Identifying a date for event. Advised event may align with end of school year alongside exams, workloads, and curriculums.
   + Send out invites to schools to identify number of participants.
   + Organise run sheet of activities to be run across the day, centred around key topic of drought resilience. These activities need not be extensive and may be kept to 10- or 15-minute slots. This could include putting on a BBQ lunch for the children.
   + Contact relevant organisations to participate in activities.
5. Host the event.
6. Establish a monitoring and evaluation process to evaluate the success of the event and conduct a lesson learned process with the view of repeating the event in subsequent years. This should include identifying local businesses and agencies who could contribute funding for future events.
7. Issue fun and interactive quizzes to assess success of adoption of water efficiency practices. This could explore the possibility of providing ways to improve if score is low, e.g., water time for the sprinkler system.

KPIs

+ Adoption of event within Bathurst, Lithgow, and Oberon Council areas.
+ Proportion of local primary schools that expressed interest in participating in the event.
+ Proportion of schools participating in the event.
+ Number of students who participated in the event.
+ Proportion of positive feedback from schools, teachers, students, and parents.
+ Adoption of water efficiency practices within homes.

Resilience Dividend

Economic

Reduced water consumption in households (potentially leading to reduced water bills).

Environmental

Instils a sense of environmental responsibility and stewardship, which can have a lasting positive impact on local ecosystems.

Social

+ Builds a more informed and prepared generation, capable of understanding the challenges of drought and taking proactive steps to mitigate its impacts.
+ Knowledge shared within family units, encouraging water-saving behaviours, and fostering culture and ownership of drought resilience.
+ Strengthen community bonds by involving local schools, parents, and local organisations, fostering a sense of shared responsibility for drought resilience.
+ Facilitates network building across LGAs and between industries.

Supporting Actions

Schools to encourage attendance at events and support ongoing learning through curriculum.

Next Steps

+ Establish the event annually.
+ Maintain and continue to develop connections with local schools and organisations to participate in and contribute to the event.
+ Maintain and continue to develop connections with local organisations and groups to participate in and contribute to the annual event.

Improving Adoption of Water Use Practices through Community Knowledge Sharing

Spheres

Social

Environmental

SDG Alignment

Rationale

Driving down potable water consumption by town residents and small businesses is critical to ensuring the availability of fresh water for dry/drought periods and future generations. It is important that the community is provided with practical and cost-effective water saving measures that they can enact both during times of water scarcity and in daily life. This need was strongly reflected by the community in all manner of awareness-building actions raised in relation to capturing and/or conserving water. Most critically, the community had a strong desire to encourage knowledge-sharing to learn what water conservation measures their neighbours, friends and colleagues were implementing and how. Preferred water-saving solutions that were identified by community members ranged from rainwater tanks, grey water re-use systems, drought tolerant garden beds and landscaping solutions and wicking beds, to slightly larger scale solutions which could be implemented by small businesses or schools.

Providing the opportunity for community members to directly connect and learn from local 'water savings champions' through small-scale bus tours, would not only strengthen social networks but provide participants with tangible knowledge that they can replicate at home, at work, or at school. This would expose community members to a range of practical water savings solutions, allowing residents to utilise solutions most suited to their own personal needs.

To ensure this information can be disseminated to the broader community, particularly those who cannot attend in person, each 'water savings champion' would also film a 2–3-minute educational video and develop a digital one-page fact sheet on their respective water savings solution (s). This would act as a lasting resource that community members can access at any time from a dedicated online portal. Resources would include the implementation steps taken, any Council requirements and approvals needed, FAQs, and any other useful resources and websites to assist community members with implementation.

The intent of this action is to connect community members for the purposes of education and awareness-building, arming the community with the tools and knowledge to implement practical water savings solutions in their own backyard. This action aims to not only strengthen the social networks across Bathurst, Lithgow, and Oberon but also play a role in tackling the issue of overconsumption of potable water by town residents, small businesses, and schools. Longer term, this action would also involve identification of grant funding to assist community members with the implementation of more costly initiatives such as large-scale rainwater tanks and water efficient fixtures/appliances, including front-load washing machines.

Through capacity building initiatives, this action aims to modify the existing system, building awareness of and connecting community members with existing tools and knowledge to improve water conservation across the region.

Implementation Timeframe

12 months.

Estimated Costs

Total Cost: $66,600.

+ Management, engagement, and coordination of action: coordinator remuneration: $30,000 - $46,000.
+ Equipment and skills for resource development: $600 and in-kind support to be provided by Western Sydney University students.
+ Tour costs: $15,000.
+ Advertising: $5,000.

Action Owner

Western Sydney University (Maldhan Ngurr Ngurra Lithgow Transformation Hub).

Stakeholders

+ Community participants.
+ Dedicated water savings champions (residents, small businesses, or school representatives).
+ Local tourism or bus companies.
+ Water infrastructure and water savings solutions materials suppliers e.g., WaterMart Bathurst, Lithgow Landscape and Produce Supplies, Australian Native Landscapes, Oberon.
+ Bathurst Regional Council, Lithgow City Council, and Oberon Council.

Steps for Implementation

1. Nominate or recruit a dedicated resource(s) from within Western Sydney University, to coordinate the implementation of steps 2–15.
2. Develop an informal role description that includes the following:

+ Overall intended aim of the action.
+ Timeframe for implementation.
+ Steps and tasks required to implement the action (as detailed in steps 3 – 15).
+ Estimated costs.
+ Process for raising any concerns regarding implementation as nominated by Western Sydney University.

3. Undertake engagement in the form of phone calls, emails, or social media call outs to local residents, small businesses, and/or schools to identify up to 10 community 'water savings champions' to showcase their respective water savings solutions.
4. Undertake further engagement to understand capabilities of 'water savings champions' to develop a 2-3-minute educational video and coordinate supporting resources as needed e.g., hiring, and disseminating of camera equipment, or recruiting freelance cinematographer to assist.
5. Develop a fact sheet template to provide to 'water savings champions' and assist with input of the necessary information on their respective water savings solution(s).
6. Collect and organise educational videos and fact sheets so they are ready to upload to the relevant online portal as nominated by Western Sydney University.
7. If a suitable online portal isn't already available, Western Sydney University are to engage a content creator or marketing resource (ideally a Western Sydney University student) to help develop a suitable page/location on the Western Sydney University website to store educational resources. Further, this resource would be available to assist with video editing and graphic design of fact sheets.
8. Upload educational materials to the nominated Western Sydney University online portal.
9. Communicate the availability of educational videos and fact sheets to community members of Bathurst, Lithgow and Oberon through social media, any relevant Western Sydney University newsletters, and emails and main Western Sydney University webpage. Communication of resources could be extended further by providing active links on Council webpages.
10. Engage with local tourism or bus companies in each respective LGA to determine feasibility of small-scale bus tour for residents to view water savings solutions in person.
11. Re-engage with each of the 'water savings champions' through emails or phone calls to confirm their involvement for in-person viewing of their water savings solutions.
12. Advertise bus tours through social media or Western Sydney University website to anticipate the number of attendees.
13. Develop a timeframe and itinerary for bus tours to provide attendees and organise any other resources needed to facilitate e.g., catering, water.

Improving Adoption of Water Use Practices through Community Knowledge Sharing *continued*

14. Undertake bus tours which would be overseen by dedicated coordinator.

15. Repeat yearly (particularly if drought conditions change) to show how the solutions perform under different drought conditions, and to showcase solutions when people are most receptive to changing their behaviour.

KPIs

+ Number of educational videos and fact sheets completed and made available.
+ Number of water savings solutions showcased.
+ Number of tours hosted.
+ Proportion of participants intending to implement some/all of water saving activities.
+ Proportion of participants who learned something about water saving solutions/drought.
+ Hits/downloads on the website/portal.
+ Levels of social media engagement including number of posts shared or likes received.
+ Dollars spent at local businesses on supplies to implement water savings solutions.

Resilience Dividend

Economic

+ Increased cash flow into local businesses and suppliers of materials needed to implement water savings solutions.
+ Delayed Capital Expenditure by Councils to install rainfall independent water supply infrastructure such as recycled water plants and desalination plants, including treatment, piping, and pumping.

Environmental

+ Reduced consumption of fresh potable water reducing stress on rivers and catchments as primary water supply.
+ Supporting natural flow of rivers and catchments and overall waterway health through biodiversity indicators such as population ecology of fish species.

Social

+ Improved social networks between community members reducing levels of isolation and rates of depression and anxiety.
+ Improved drought awareness and understanding amongst community members fostering greater environmental responsibility.
+ Delivery of informal education and skills development providing residents with a sense of purpose and improved ability to cope with stress related to water scarcity (particularly elderly residents).

Supporting Actions

+ Western Sydney University students – provide opportunities for students to achieve credits towards relevant degrees to incentivise participation in the action program.
+ Water infrastructure and water savings solutions materials suppliers – are made aware of the action implementation and thus can anticipate additional business and customers and pool relevant information and resources to support uptake of water savings solutions.
+ Council – support awareness raising around action implementation and share links to educational resources to ensure they are wide reaching.

Next steps

+ Identify grant funds are rebate schemes to support the uptake of more expensive water savings solutions e.g., large scale rainwater tanks and front load washing machines.
+ After initial 12 months of implementation, consider providing the option of bus tours to primary school groups in the following 12 months to extend the reach of awareness raising to school aged children.

Fostering an Ecosystem of Drought Resilient Support and Best-Practice across the Region

Economic Social Environmental

SDG Alignment

Rationale

Despite the availability of support services aiming to improve the financial, social, or environmental drought resilience of landholders, residents, and businesses, there is a lack of awareness among the intended recipients. The diversity, multitude, and dispersed location of service providers can make it challenging for recipients to access information about support, contributing to this lack of awareness.

In parallel, service providers may be unaware of programs, rebates, or offerings provided by local Councils, government agencies, not-for-profits, and community groups. This hampers the provision of valuable information to their clientele. Adding to the complexity, service providers encounter difficulties in selecting the most effective communication channels to reach different demographics. They often lack the resources or expertise to generate sufficient interest and ensure that awareness of a particular issue or available support translates into active participation and adoption.

Recognising the need for a more effective approach, storytelling was identified as a strategy to connect with the intended audience, local people, by telling their stories and showcasing how community members were addressing drought impacts or enhancing preparedness, water usage, or land management. Fostering interest for a particular solution is an incremental process that begins with general awareness of an idea. Subsequent stories can build upon this awareness before the audience is introduced to the details of accessing available assistance.

Sustaining this over time, requires a dedicated resource equipped with the ability to craft captivating stories. These stories should be released across multiple communication modes to ensure a broad reach. This approach aims to bridge the awareness gap, facilitating a more engaged community that actively participates in, and adopts available support services to enhance resilience in the face of drought.

This action is designed to modify the existing drought resilience space, providing greater coordination of local initiatives and services available across the region. By improving connection and community engagement, this action will build upon existing work to provide sustained and coordinated drought resilience support to Bathurst, Lithgow, and Oberon.

Part A: Drought Resilience Media Officer Role

This resource, the drought resilience media officer role, would be flexible and guided by insights from various stakeholders, such as mental health providers, Council water-efficiency programs, and financial assistance services. It is envisaged that content would be informed by travelling to local events, the showcasing of support services, and interviews of individuals or businesses who have implemented drought resilient solutions. The content would be multi-modal, such as written case studies, newspaper articles, radio stories, YouTube videos, or social media clips, targeting subject matter relating to drought preparedness, resilience, or support. Involved stakeholders would be free to use generated content in subsequent activities, thereby providing a long-term repository of resources.

The role would ideally be filled by a person with a creative skillset including journalism, social media creation, networking, stakeholder engagement, and website management. Ideally the person would have firsthand experience of living within a regional farming community, providing them with direct understanding of the challenges and consequences associated with drought.

Part B: Drought Resilience Support Services Coordinator

Sharing information can enhance the effectiveness and reach of existing services, maximising the utilisation of existing support, and avoiding duplication of effort. A services coordinator role would act to create a hub for the identification of drought-related services available across sectors including financial planning, land management, mental health, and water efficiency. This role would be responsible for highlighting connections between, and promoting cross awareness of available support programs, rebates, and information sessions facilitated by different organisations. Details to access these services will also be made available and highlighted to respective target audiences. This would be achieved through regular newsletters, events calendars, and other networking activities carried out across the three LGAs.

Implementation Timeframe

12 months.

Estimated Costs

+ Part A Total Cost: $90,000 - $110,000.
+ Part B Total Cost: $60,000 - $80,000.

Action Owner

Bathurst Regional, Lithgow City, and Oberon Councils.

Stakeholders

+ Drought-related service providers.
+ Recipients of drought-related services and support, including town residents, businesses, and landholders.

Steps for Implementation

Part A:

1. Develop and issue an RFQ for a contractor to assume the role of the media officer.
2. Recruit third-party contractor who would be responsible for steps 3 – 7.
3. Develop and implement media strategies by identifying target audiences, choosing appropriate media platforms, and creating compelling content.
4. Build and maintain relationships with media outlets, journalists, key stakeholders, and influencers within target audience communities. This includes pitching story ideas, responding to media inquiries, arranging interviews, and covering relevant topics or events which align with regional drought resilience.
5. Create and distribute engaging and informative content for various media channels, such as press releases, articles, videos, blog posts and social media updates, ensuring timely distribution to relevant media outlets and channels.
6. In the event of a drought, assist in the creation of communication plans, services information, and promotion of available assistance services.
7. Monitor media coverage and analyse its impact and reach, making recommendations to stakeholders for improvement regarding engagement.

Fostering an Ecosystem of Drought Resilient Support and Best-Practice across the Region *continued*

Part B:

1. Develop a role description and KPIs for the position.
2. Develop and issue an RFQ for a contractor to assume the role of the support services coordinator.
3. Recruit third-party contractor who would be responsible for steps 4 – 8.
4. Develop a centralised resource directory of drought-related support services available from government agencies, not-for-profit service providers, and community organisations for easy access. This may draw on Council-provided contact databases for the identification of additional services, where appropriate.
5. Identify synergies between service providers and link relevant providers to facilitate networking and optimisation of service provision.
6. Publicly issue resource directory, with documentation of services, providers, links to providers and other key information.
7. Working collaboratively with the Drought Resilience Media Officer Role, develop processes and tools to build awareness of available support amongst stakeholders.
8. Link community leaders, organisations and residents with specialist support, guidance, and resources to further drought resilience outcomes. This step may be done in collaboration with the Drought Resilience Media Officer Role to build an effective network.
9. Continue to create opportunities for cross-awareness and collaboration amongst different organisations offering support.

KPIs

Part A

+ Content developed.
+ Number of drought-resilience related stories developed and released.
+ Reach and engagement with created content.

Part B:

+ Creation of a support services database.
+ Number of services cross-promoted amongst stakeholders.
+ Number of service sharing activities undertaken.

Resilience Dividend:

Economic

+ Increased adoption of financial planning, income diversification and utilisation of available grants, rebates, and financial support.
+ Efficiencies created in the provision of support services to the community.

Environmental

Improved uptake of water efficiency measures resulting in an increase in potable water availability.

Social

+ Improved health and wellbeing of individuals and community groups.
+ Networking between community groups and organisations through the optimisation of service provisions.
+ Improved awareness and transparency of support available, leading to more empowered communities and individuals during times of distress.

Next Steps:

+ Update services directory hub regularly to reflect latest information on support services.
+ Investigate opportunity to undertake targeted outreach for prioritised targets audiences for specific services and tailor communication materials accordingly.
+ Assess effectiveness of each role with a view to securing funding to provide the role(s) on a long term or permanent basis.

07

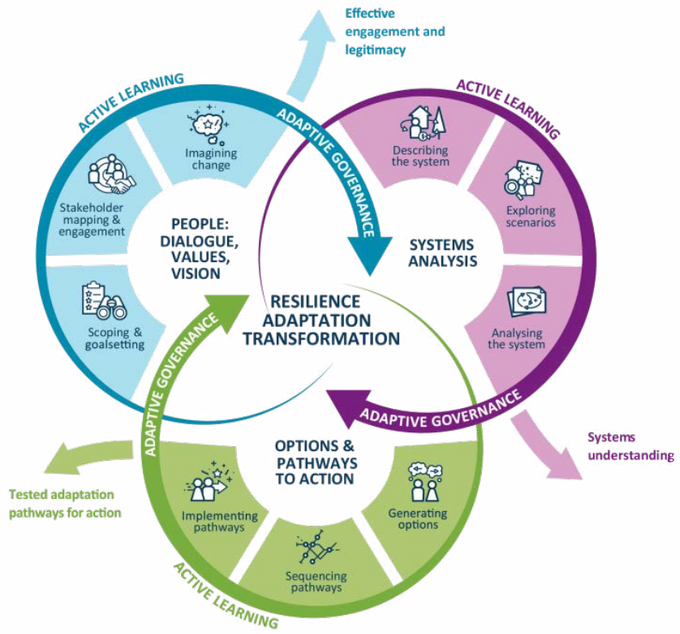
Monitoring, Evaluation and Learning

Monitoring, Evaluation, and Learning (MEL) is core to the implementation of the RDR Plan, maximising effective program delivery, transparency, adaptive management, and long-term sustainability (see Program Logic in Section 6).

To optimise the effectiveness and outcome of MEL processes, MEL activities are embedded into the governance model and every stage of the RDR Plan program cycle, from the initial design to the implementation, and close out phases. The intention is that MEL processes will be regularly reviewed and updated by the regional Consortia of local governments and implementation partners to reflect changes. This allows for active learning and adaptive governance to best monitor and evaluate the performance of the RDR Plan pathways and actions, following the RAPTA guide (see Figure 7.1). It is important to note that this RDR Plan serves as a living document and through the MEL process, can be reviewed and updated as conditions change and as our communities improve in understanding their drought vulnerability, thus the changing needs of community resilience toward drought.

Delivery of MEL process for this RDR Plan can also be informed by and aligned with Bathurst Regional Council, Lithgow City Council, and Oberon Council's Integrated Planning and Reporting (IPR) Framework such as Bathurst's Delivery Program 2021-2025, Lithgow's Draft 2023/24 Operational Plan and Community Framework and Strategy 2022, and Local Strategic Planning Statement 2040 to ensure efficiency and optimisation of time and efforts.

Figure 7.1: Resilience, Adaptation Pathways and Transformation Approach (RAPTA)



Source: CSIRO[95]

The RDR Plan's MEL framework are underpinned by following core components:

What Outcomes the Plan Intends to Achieve

The Program Logic (in Figure 6.1) describes the goals and strategic objectives, and what the Plan hopes to achieve over the short, medium, and long term.

MEL Scope and Approaches

MEL scope and approaches help to ensure the region's ongoing commitment to strengthening drought preparedness and resilience. These are adopted from the FDF Monitoring, Evaluation and Learning Framework 2020 (as shown in Figure 7.2 below).

Figure 7.2: Monitoring, Evaluation, and Learning Scope

Impact

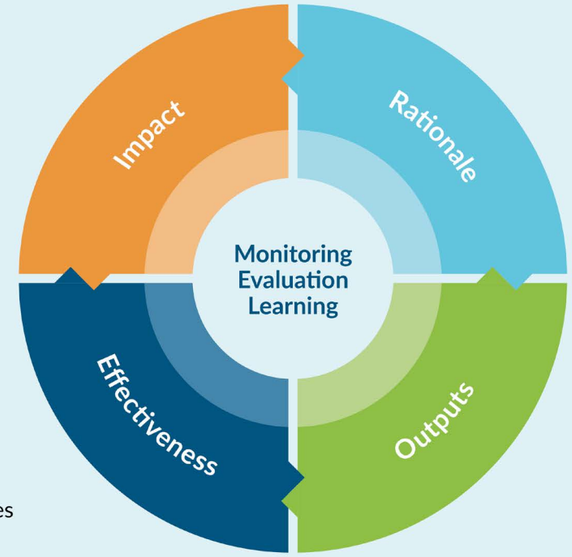
What signs are there towards long-term drought resilience?

What priorities and opportunities do the programs reveal for drought resilience, future Funding Plans and programs?

Rationale

To what extent are the programs aligned with the strategic objectives of the Funding Plan, and targeted at important needs?

What can be done to improve the appropriateness of the investments?



Effectiveness

To what extent are programs achieving their intended outcomes (and any unintended outcomes)?

What could be done to improve the outcomes of the investments?

Outputs

To what extent are the program outputs being administered and delivered efficiently, and to the expected quality?

What can be done to improve efficiency of the investments?

Source: Future Drought Fund. 2020.[96]

MEL Roles and Responsibilities

The Project Control Group (PCG) developed during RDR Plan development phases will continue to operate as a reference governance structure overseeing the RDR Plan implementation and ongoing development. The PCG consists of:

+ Department of Regional NSW – Strategy & Policy
+ Bathurst Regional Council
+ Lithgow City Council
+ Oberon Council
+ Any other individual selected by the PCG.

Through the PCG and Council Consortia, continued monitoring, evaluation, and learning responsibilities will be shared. During the implementation phase, Councils will discuss and select appropriate governance arrangements for each action depending on the nature and coverage of the required work and management effort.

Tracking Progress of the Plan

Below are key elements of how to track progress of the RDR Plan. These questions should be raised and considered by Action Owners and Council, through regular, scheduled review periods.

Key evaluation questions

+ To what extent has the RDR Plan been implemented and impacted on the regional stakeholders and communities to strengthening drought preparedness and resilience? (Including intended and unintended, positive, and negative outcomes).
+ How is economic, environmental, and social drought resilience changing (or not) in the region, in which locations? (in a specific LGA or whole region, how and why?)
+ To what extent do the outcomes achieved by the Plan align with improvements in overall drought resilience in the region and across Australia?
+ What future priorities and opportunities are revealed by overall trends in drought resilience (including economic condition changes, community needs, etc.) and/or by the outcomes of the Plan?
+ What priorities and lessons can be drawn to improve the appropriateness, efficiency, sustainability, or effectiveness of future RDR Plan implementation so that they make the best possible contribution to the Plan's goals and strategic objectives.

Indicators for regular monitoring

Table 7.1 provides specific RDR Plan indicators for regular monitoring and evaluation of the Plan based on the relevant FDF MEL framework indicators and the actions developed in this RDR Plan. Each action has a set of specific KPIs, which can also be used for regular monitoring and evaluation.

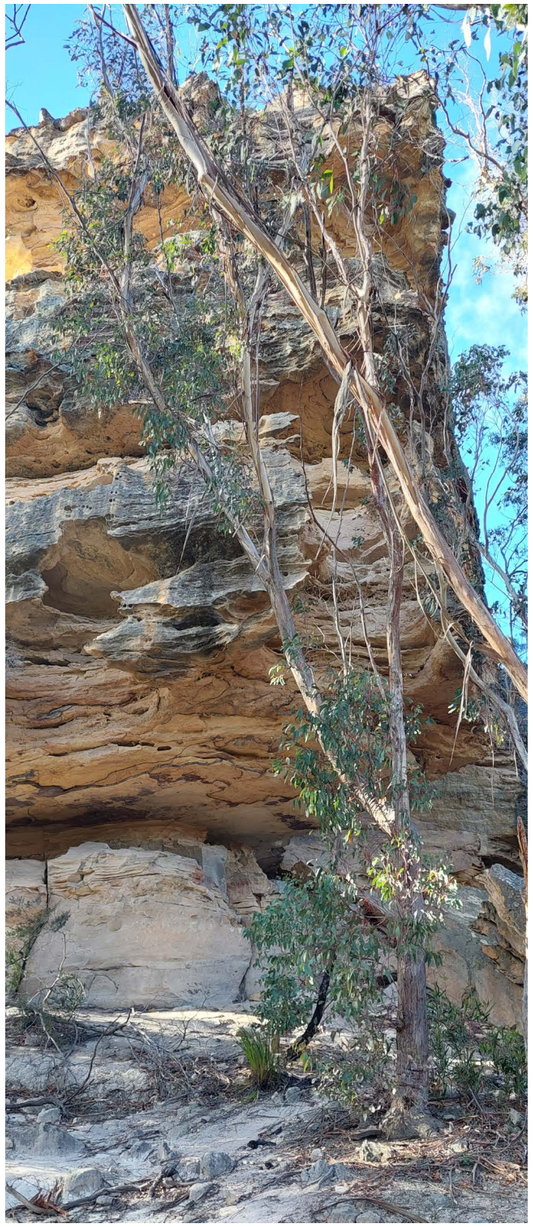


Table 7.1: Indicators for regular monitoring of the RDR Plan

FDF High-level indicators	Specific RDR Plan Indicators	Evaluation Approach
Intermediate outcomes of the Plan (1-4 years)		
Agricultural businesses are self-reliant, productive, and profitable (economic resilience).	+ Improving the diversity of farm incomes provides landholders with alternative revenue streams, enhancing their economic resilience. + Increasing tourism offerings within the Region to increase tourism visitation and local spending. + Skill development initiatives associated with agritourism enhance community and landholder adaptability to changing economic landscapes and provide new avenues for employment. + Supplementary income can help finance complementary sustainability practices on-farm to maintain the successful operation of the venture, building capacity for environmental stewardship. + Reduced disruptions of business operations and therefore reduced economic losses. + Business owners actively pursue opportunities to adopt better financial planning, income diversification and utilisation of available grants, rebates, and financial support to increase financial security of their business pre-, during, and post-drought. + Reduced water consumption in households (potentially leading to reduced water bills). + Delayed Capital Expenditure by Councils to install rainfall independent water supply infrastructure such as recycled water plants and desalination plants, including treatment, piping, and pumping.	+ Monitor ongoing business cash flow, with learning from previous droughts implemented into management plans. + Economic metrics reported quarterly or annually. + Annual reporting on agritourism activities. + Annual reporting on employment rate. + Bi-annual business surveys. + Council's annual budget tracking report. + Evaluation of previous lessons learned. + Stakeholder/landholder/ business owner interviews and surveys.
Agricultural landscapes are functional and sustainable, with healthy natural capital (environmental resilience)	+ Promotion of responsible water use and conservation to help preserve and protect local ecosystems during drought conditions, maintain water quality, and reduce stress on water resources during drought. + Improved uptake of sustainable land management practices through awareness of available rebates, programs, and support. + Instils a sense of environmental responsibility and stewardship through drought education for school children, which can lead to a lasting positive impact on local ecosystems. + Improved natural flow of rivers and catchments and overall waterway health through biodiversity indicators such as population ecology of fish species. + Portable water consumption has reduced as a result on implementing water saving measures.	+ Monitor ongoing water usage, annual reporting, and tracking. + Rebate and Program tracking reports. + Stakeholder interviews and surveys.

FDF High-level indicators	Specific RDR Plan Indicators	Evaluation Approach
Intermediate outcomes of the Plan (1-4 years)		
Agricultural businesses are self-reliant, productive, and profitable (economic resilience).	+ Improving the diversity of farm incomes provides landholders with alternative revenue streams, enhancing their economic resilience. + Increasing tourism offerings within the Region to increase tourism visitation and local spending. + Skill development initiatives associated with agritourism enhance community and landholder adaptability to changing economic landscapes and provide new avenues for employment. + Supplementary income can help finance complementary sustainability practices on-farm to maintain the successful operation of the venture, building capacity for environmental stewardship. + Reduced disruptions of business operations and therefore reduced economic losses. + Business owners actively pursue opportunities to adopt better financial planning, income diversification and utilisation of available grants, rebates, and financial support to increase financial security of their business pre-, during, and post-drought. + Reduced water consumption in households (potentially leading to reduced water bills). + Delayed Capital Expenditure by Councils to install rainfall independent water supply infrastructure such as recycled water plants and desalination plants, including treatment, piping, and pumping.	+ Monitor ongoing business cash flow, with learning from previous droughts implemented into management plans. + Economic metrics reported quarterly or annually. + Annual reporting on agritourism activities. + Annual reporting on employment rate. + Bi-annual business surveys. + Council's annual budget tracking report. + Evaluation of previous lessons learned. + Stakeholder/landholder/ business owner interviews and surveys.
Agricultural landscapes are functional and sustainable, with healthy natural capital (environmental resilience)	+ Promotion of responsible water use and conservation to help preserve and protect local ecosystems during drought conditions, maintain water quality, and reduce stress on water resources during drought. + Improved uptake of sustainable land management practices through awareness of available rebates, programs, and support. + Instils a sense of environmental responsibility and stewardship through drought education for school children, which can lead to a lasting positive impact on local ecosystems. + Improved natural flow of rivers and catchments and overall waterway health through biodiversity indicators such as population ecology of fish species. + Portable water consumption has reduced as a result on implementing water saving measures.	+ Monitor ongoing water usage, annual reporting, and tracking. + Rebate & Program tracking reports. + Stakeholder interviews and surveys.

FDF High-level indicators	Specific RDR Plan Indicators	Evaluation Approach
Agricultural communities are resourceful, adaptable, and thriving (social resilience)	+ Agritourism has contributed to the preservation of cultural identity. + Improved water management practices, which can help ensure a more reliable water supply for communities, reducing the risk of water shortages during droughts and enhancing public health and wellbeing. + Improved social connections across the community, with greater uptake and awareness of available support services offered across the region (both physical health, mental, and financial supports). Build a strong sense of community, encouraging mutual support and shared experiences. + Improved awareness and transparency of support available, leading to more empowered communities and individuals during times of distress. + Networking through exchange of ideas, contributing to ongoing learning and development. + Empowering decision-making of landholders by provide appropriate tools and strategies can result in positive mental health outcomes. + Building individual resilience has improved the resilience of families, school communities and the wider community.	+ Annual reporting and review of RDR plan implementation, barriers, and opportunities, making changes to the RDR Plan as necessary to meet the regional needs of communities. + Support service feedback reports. + Stakeholder and community interviews and surveys. + Key questions to ask include: + How confident are the community's necessary skills and resources to face drought and make necessary changes? + How invested are they in implementing the RDR Plan? + What actions or decisions have been directly initiated as a result of the RDR Plan?
Long-term outcomes (4+ years)		
Stronger connectedness and greater social capital within communities, contributing to wellbeing and security. Communities implement transformative activities that improve their resilience to drought. More primary producers preserve natural capital while also improving productivity and profitability.	+ There is a common understanding and shared vision in the region to manage drought risks and build community drought resilience. + The region works collectively and in partnerships to build drought resilience across three main pillars. + Measures are implemented to limit impacts of drought and better respond to drought. + Stakeholders and communities actively share knowledge and take actions contributing towards drought resilience.	+ An on-going regional oversight committee comprising of the Plan's owners and key stakeholder representatives/ implementation partners is critical. + This committee would have the role of initiating actions in line with the RDR Plan, reviewing progress against the Plan objectives and reflecting changes to the Plan as needed to maintain its relevance and usefulness. + Monitoring and evaluation activities should be taken at the regional level by this committee, which include: + Monitoring and reporting of regional level indicators that are captured as part of Local Government surveillance, surveys, and annual reporting. + Records of case studies demonstrate changes as a result of actions taken from the implementation of the Plan.

Tools to support regular data collection on the indicators

Key data sources for the Plan regular monitoring approach are outlined in Table 7.2 below:

Table 7.2: Tools to support regular data collection for MEL

Data Source/Tool	Description	Frequency of collection	Data availability
Implementation partners and stakeholders end of program evaluation completed online and capture in Management Information System (MIS).	At the end of each program/action, request feedback from stakeholders and implementation partners.	End of program or project.	Continuous and ongoing.
MIS.	Stores and enables analysis of basic information on participate stakeholders and community group members.	Ongoing.	Real-time.
Media monitoring and media analytics.	Monitoring: To capture stories that are profiled in the media about regional drought resilience and relevant actions. Analytics: To capture insights about social media sites including engagement, reach, content performance, reactions, audience demographics.	Monthly.	Available in local media for social and online media.
Community surveys.	Online or hard copy surveys sent to stakeholders and communities to gather feedback on the RDR Plan effectiveness.	Annually.	Annually, one month after survey closes.
Monitoring visits.	Targeted monitoring visits to interview relevant stakeholders and communities to gather feedback in written report to support data assurance.	Bi-annually.	One month after monitoring visit.
Case studies of changes.	Recording case studies of changes made and benefits evident as a result of actions taken from the implementation of the Plan.	Annual.	Annually.

Activities evaluating the proposed actions in this RDR Plan provide a deeper understanding of successes and what can be improved. This works to ensure a full and informed action plan for implementation of each action is established.

The design and delivery of all MEL activities are informed by following principles:

1. Utilisation-focussed
2. Cost-effectiveness
3. Fit-for-purpose
4. Transparent and accountable
5. Realistic
6. Flexible

The Key Risks to the Implementation of the RDR Plan and MEL Process

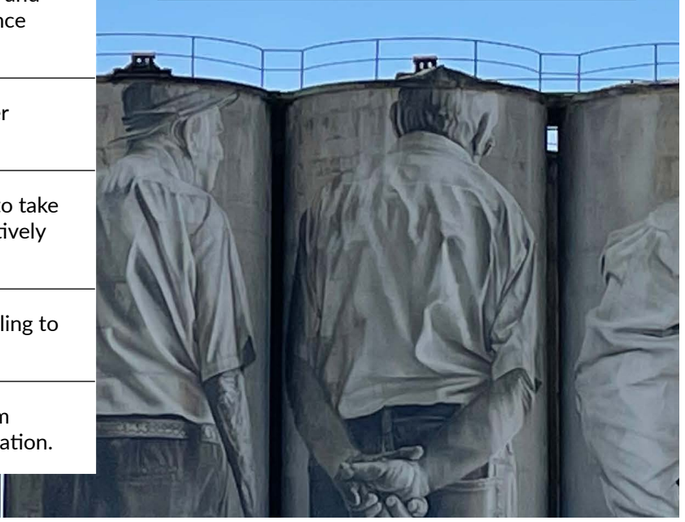
The Following assumptions were identified, based on the FDF MEL framework for the RDR plan, to be effectively implemented:

Key assumptions affecting the plan short term outcomes

- The consortia of local governments have dedicated resource, capability, and the right governance mechanism to coordinate strategic planning activities.
- Regional stakeholders have the capacity and capability to actively participate in the plan.
- Regional stakeholders are willing to cooperate with each other on regional resilience planning.
- Program design is sufficient to give regional stakeholders opportunities to identify and communicate regional drought resilience needs.
- The program can be aligned with other relevant strategic planning.
- Regional communities are motivated to take ownership of completed plans and actively seek to implement them.
- Stakeholders and communities are willing to share learnings with other regions.
- There are sufficient learnings to inform future program design and implementation.

Key assumptions affecting the plan long term outcomes (>4 years)

- Supporting consortia of local governments/ stakeholders representing a region will result in changes in practice through those regions.
- There are sufficient opportunities for regions to implement elements of plans.
- Plans contain implementable activities to build regional drought resilience across Australia.
- Regions continue to review, update, and implement their plans.



These assumptions will need to be reviewed and updated during the implementation phase to reflect changes and new interventions can be designed.

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