Armidale Regional Council
and Uralla Shire Council

Regional Drought Resilience Plan

Uralla
URALLA SHIRE COUNCIL

ARMIDALE
Regional Council

Acknowledgement of Country

We acknowledge the Anaiwan and Kamilaroi people as the Traditional Custodians of the region's lands and waters where we live and work, and pay our respected to Elders past and present.

We value the vital involvement of members of the primary production, service industries, health and education, First Nations, cultural and arts, and broader communities of the Armidale Region and Uralla Shire to the formulation of this plan and extend our thanks to those who contributed.

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Front cover image Michael Hull.

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Contents

Glossary

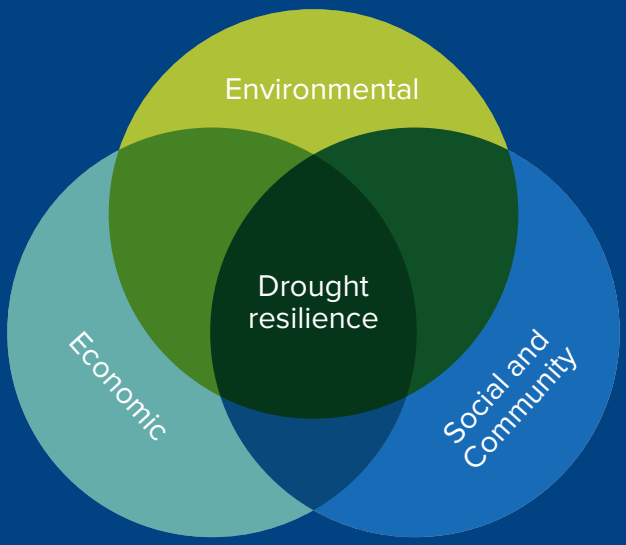
Key terms used throughout this plan are defined below.

ADAPTATION	Adjustment or modification in natural and/or human systems in response to actual or expected shocks and stresses to moderate harm, reduce vulnerability and/or exploit beneficial opportunities.
ADAPTIVE CAPACITY	The ability of individuals and groups to adjust and respond to environmental and socio-economic changes.
ADAPTIVE GOVERNANCE	Coordinating iterative, flexible and responsive interactions between systems when designing interventions and for their implementation and evaluation.
COPING CAPACITY	Communities that may be constrained in their capacity to use available resources to cope with adverse events and to prepare for, absorb and recover.
DROUGHT	Drought means acute water shortage. Drought is a prolonged, abnormally dry period when the amount of available water is insufficient to meet our normal use.
ECONOMIC RESILIENCE	The ability of the economy to absorb the economic impact of shocks and stressors without changing the economic status or outcomes.
ENVIRONMENTAL RESILIENCE	The ability of the natural environment to cope with a diverse range of shocks and stressors while maintaining natural processes and ecosystem services.
GOVERNANCE	Governance is the structures and processes by which individuals, groups and agencies in a society share power and make decisions. It can be formally institutionalised, or informal.
INTERVENTION OPTIONS	Alternative or complementary actions, projects, programs, policies, initiatives and investments that are planned to bring about change in the system.
LOCAL KNOWLEDGE	Local knowledge and First Nations knowledge incorporates elements of lived experience within a landscape, bearing witness to the operation of systems. It includes aspects of people, landscape, culture – how people interact with surroundings and as part of communities and processes.
RESILIENCE	The ability of a system to absorb a disturbance and reorganise so as to maintain the existing functions, structure and feedbacks. 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.
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'.
SOCIAL RESILIENCE	The ability of the human society to cope with a diverse range of shocks and stressors while maintaining existing social and community functions.
STRESSOR	An event that occurs gradually over a timeframe that causes an adverse effect, e.g. drought.
SYSTEMS	The interaction of processes, networks and inter-dependencies across a complex 'whole'.
THEORY OF CHANGE	Refers to theories, causal mechanisms and assumptions that explain how and why outcomes and impacts will be achieved through use, implementation and production of proposed inputs, activities and outputs.
TRENDS	Major global or regional influences that have driven change in the past and are expected to shape change into the future.
THRESHOLD	The point at which a change in a level or amount a controlling variable causes a system to shift to a qualitatively different regime. Also referred to as a tipping point.
TRANSFORM	The process of radically changing or building a new system with different structure, functions, feedbacks and identity.
TRIGGER POINT	A pre-agreed situation or event, that when met, activates a management intervention. Trigger points are usually defined in the planning phase

Introduction

Drought is a recurring feature of the Australian landscape. It brings with it challenges at an individual and community level that can compound with broader local and regional issues.

These challenges may be things that have not been experienced previously, or the impacts of drought may amplify existing issues. The effects of drought, whilst acutely felt on-farm, go beyond the farm gate, extending across the community and impacting the economic, social, and environmental characteristics of the region.



How drought affects us depends on a range of dynamic factors, including social and market factors leading into dry conditions. For the Armidale Region and Uralla Shire, average annual rainfall is relatively high. Located at the top of several water catchments, its vast undulating hills are synonymous with the green character of the New England tablelands, supporting diverse and highly valued ecosystems and natural environments. However, past experiences with drought in the region have demonstrated that high rainfall levels are not always guaranteed. Historic droughts have given rise to expected and unexpected challenges, with more recent events demonstrating immense strains that can be placed on the values of the community when the pressures of drought take hold.

The rapid cycle of hazard-related social and economic events over recent years has resulted in unique stresses. These stresses go beyond just drought, and ultimately challenge our preparedness ahead of the next dry period. The interlinkages between these compounding events, including drought, bush fire, COVID, housing pressures and the cost of living, can result in feelings of being in a constant state of response. This plan seeks to ensure a considered and comprehensive approach to drought is undertaken across the region. One that builds on the established strengths of our communities and seeks to address challenges early, in order to place us in the best possible position ahead of the next dry period.

This Regional Drought Resilience Plan (RDRP) is a collaboration between Armidale Regional Council and Uralla Shire Council, developed alongside their communities, working together to strengthen preparations for drought and broaden resilience to its impacts. The RDRP program is one of five focus areas under the Commonwealth Government's Future Drought Fund and is jointly funded by the NSW Government support of regional consortiums of local governments and partner stakeholders to plan pragmatically and proactively for drought resilience.[1]

1 Other focus areas under the Future Drought Fund include farm business resilience, roll-out of the Drought Resilience Self-Assessment Tool, and better land management practices that support landscape resilience

Image - Photo credit Michael Hull

Plan Framework

The plan establishes a vision and guiding principles drawn from stakeholder engagement and alignment to existing local plans. These components guide the development of priority areas and specific actions established in the action plan. Actions have been informed by feedback from stakeholders and alignment with existing strategies.

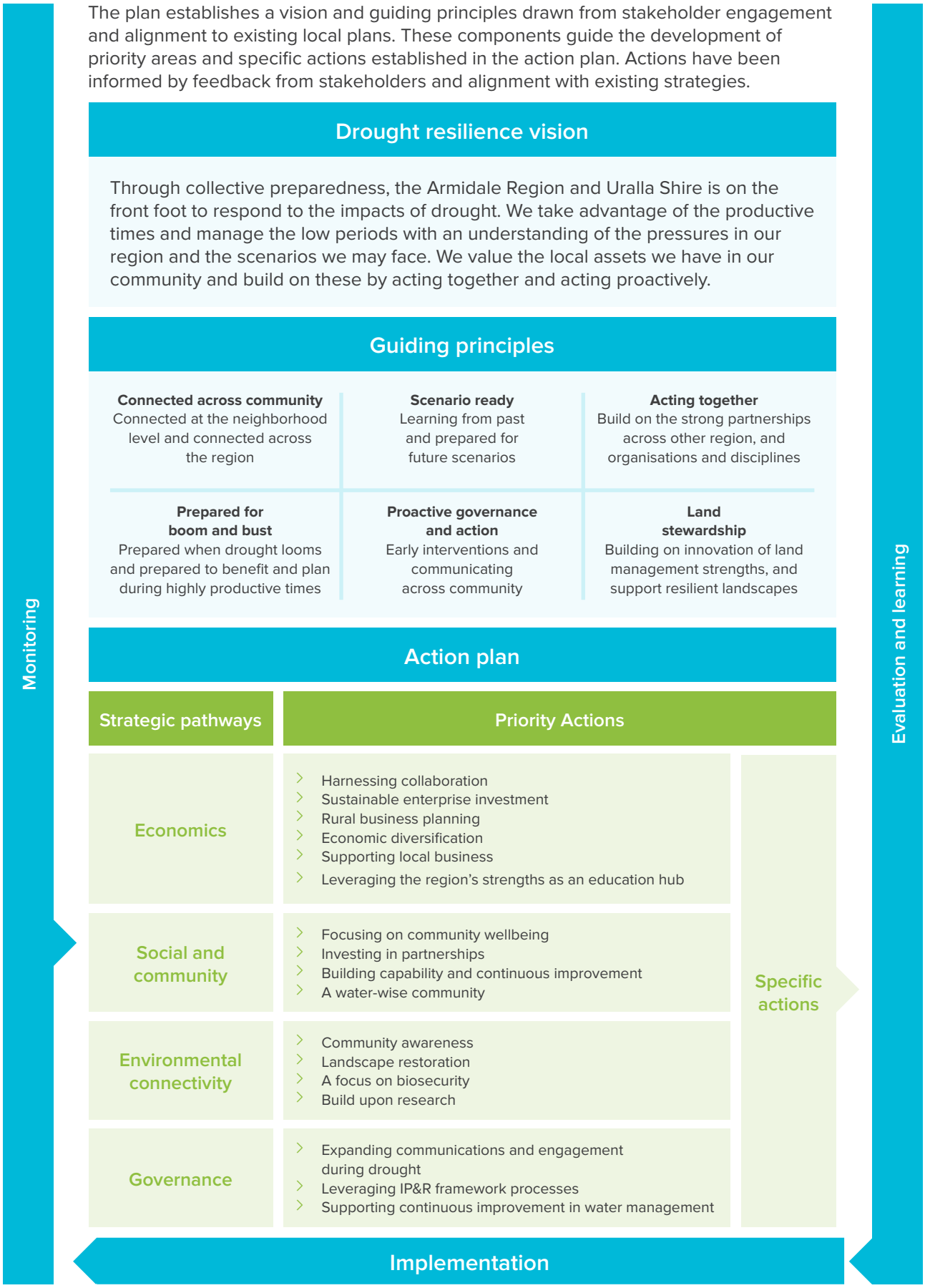


Figure 1 — Plan Framework

Plan purpose

Drought resilience, as described by the CSIRO (2022):

'will ensure regional Australia can endure deeper, longer droughts, and recover from them sooner. This will help Australia's agricultural industries maintain national farm income, increase food security, and protect the regional jobs that rely on agriculture during the toughest years. Importantly, it will also increase the resilience of rural and regional communities and improve environmental outcomes'.

This Regional Drought Resilience Plan has a focus on broader community resilience, specifically in the face of drought. The plan aims to highlight the impacts drought may have on the agriculturally strong and diverse areas of the Armidale Region and Uralla Shire, with the intention of providing a roadmap for the broader community.

Whilst the role of local government is to continue to deliver on initiatives and projects to address water security, this plan provides a guide on potential steps to be taken outside of water security options to prepare for dry times. This builds upon the existing resilience of our region and the understanding of what worked well during past droughts, what could have been done better, and where we should collectively focus our attention.

Objectives of this RDRP

- Develop an understanding of what contributes to drought resilience in the region, formed around economic, environmental and community characteristics.
- Build and strengthen existing partnerships, programs, community and organisation capacity in working to address impacts from drought.
- Identify what the priorities are in times of drought, recognising the anticipated future impacts both from historical and anticipated impacts.
- Ensure the region is positioned to adapt to changing circumstances and realise opportunities as they arise to shift vulnerabilities.
- Identify a suite of actions between the short-term and the far-term, building upon what has been done well.
- what gaps still remain, and provide a direct focus towards transformational change.
- Provide a platform and evidence-base to support public and private drought preparedness, response and recovery investment in the region, in a meaningful and impactful way.

Implementation funding is available for long-term annual investment across Australia through the Commonwealth Government's Future Drought Fund and other grant assistance opportunities. This Regional Drought Resilience Plan provides a framework for implementation and identifies practical pathways for the regions community and businesses to prepare for and respond to drought impacts.

Why we need a plan

The complex nature of drought distinguishes it from other climate and natural hazards. The impacts can be cascading, spanning across components of the community. These impacts can persist for some time after the drought ends and interacts with other existing pressures in the community.

Having a regional plan ensures a collective approach in response to drought. The changing pressures on communities and the projected changes under future climate scenarios extend beyond administrative boundaries. Responses in isolation can create further issues or fail to consider the broader catchment in which the environment functions.

The 2017-2019 drought was NSW's worst drought on record. The Armidale Region and Uralla Shire's existing contingency measures were particularly tested when the usually high average rainfall projection did not eventuate. This led to serious water shortages for domestic, agricultural and industry uses, and significant impacts on water quality. This plan takes learnings from the past to be better prepared next time. We want to be in a stronger position to adapt to changes and respond at different times of the drought cycle.

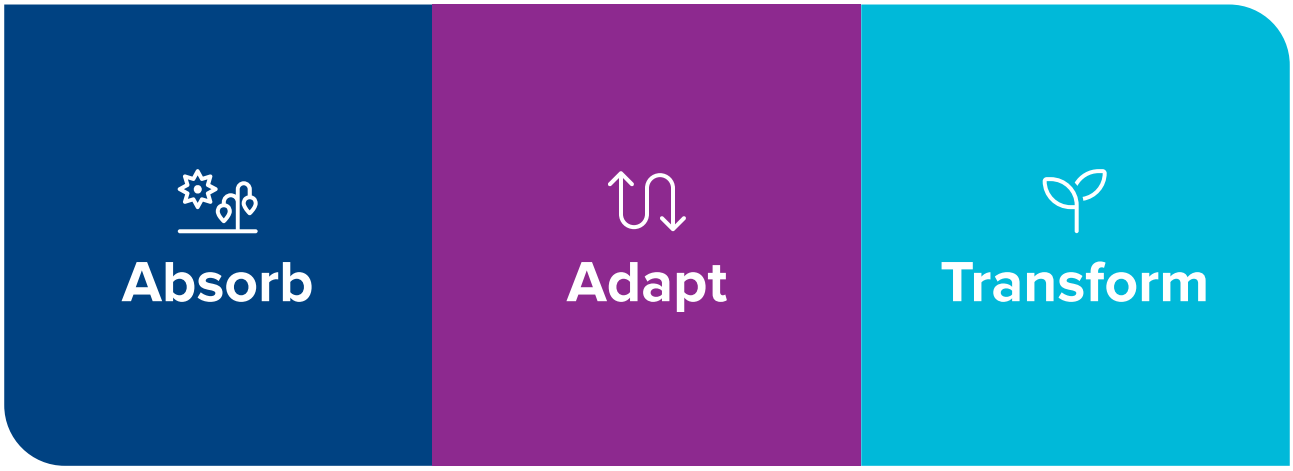
Having a plan seeks to avoid tensions placed on our tightknit communities and the cohesive social fabric which are so emblematic of the region. It allows for clarity in communication across times of drought, and across the diverse community makeup of the region.

How this plan supports drought resilience

Drought occurs amidst the broader events cycle. This plan seeks to bring the existing basis of resilience work together in a manner which directs actions across a timeline of drought. Understanding and evaluating existing work ensures that drought preparedness remains a focus, even in times of good rainfall.

This plan emphasises the role of risk reduction, acknowledging the need for clear governance in the management and impacts of drought. Drought resilience is linked to broader community resilience and therefore, the plan recognises the interlinkage of events that can strain a community through an accumulation of pressures.

Actions are developed to target these pressures across the system. This supports a roadmap of what we can do to position ourselves as best we can for when dryer times arrive. Actions can address multiple issues or have multiple benefits or alleviate pressures at critical parts of the system. Within the plan, actions are directed across several intervention approaches as below.



The intervention approach may reflect the level of change in the system, the effort or cost associated, and the outcome desired. Some opportunities are short-term and more immediate, whilst others are more transformative in nature and require long-term effort to generate change.

This concept forms part of a resilience 'theory of change' model which helps us to break down and consider the complex elements of drought resilience and the links across issues.[2] This makes it clear both how and why its impacts run so deep. This method also aids in guiding decision-making to improve resilience and adaptability as conditions and circumstances evolve over time

2 The plan integrates the 'Resilience, Adaptation Pathways and Transformation Approach (RAPTA) developed by CSIRO which provides a framework to map resilience interventions. Available at research.csiro.au/eap/rapta/

Plan outcomes

The outcomes sought from this plan align with the guiding principles established through stakeholder engagement and the resilience assessment research. The outcomes are framed around broad themes to support plan implementation and tracking through the monitoring, evaluation and learning framework referred to in later sections of this plan.

Figure 1 — Link of plan outcomes to key components of the RDRP process

THEME	OUTCOME
Social and community	O1 Community connection and wellbeing is maintained O2 Capacity and capability of community groups and organisations is strengthened O3 Mental health services are available and are accessible across the community O4 Sustainable water management practices are routinely being used
Economic	O5 Further diversification of the local economy is achieved O6 Cross-industry and cross-sector partnerships are leveraged to invest in innovative agri-business solutions and sustainable practices to prepare for drought O7 Local enterprise resilience to economic disruption is strengthened O8 Value-add industries are expanded
Environment	O9 Environmental degradation of landscapes and waterways is reduced through investment in landscape rehydration, re-forestation, riparian restoration and groundcover management O10 Innovative projects for water efficiency are delivered O11 Biosecurity outcomes are made easier to achieve through tools that grow capacity of individuals, businesses and organisations O12 Regionally-specific research is being leveraged through landholder and community organisation projects
Governance	O13 Communications and engagement action is increased during drought periods O14 Drought resilience priorities are embedded across Council's Integrated Planning and Reporting Framework and informs the plans, strategies and efforts of allied stakeholders O15 Transparency of information and knowledge regarding water use is available

Region snapshot

Information sourced from: ABS 2021 Census data, Regional Development Australia, and AgTrack - Agricultural and Land Use Dashboard

POPULATION
29,938

MEDIAN AGE
41.5
(39 NSW average)

FIRST NATIONS POPULATION
17.4%
(3.4% NSW average)

REGIONAL ECONOMY
Jobs (2021)
17,833
Economy (2020)
$2.0192b
Local businesses (2022)
3,300

UNEMPLOYMENT
Armidale
5.7%
Uralla
4.1%

VOLUNTARY WORK
(organisations)
20.0% - 23.3%
(NSW 13.0%)

Largest industries across LGAs (by employment)

ARMIDALE
- Higher education
- Hospitals
- Other social assistance services

URALLA
- Beef and cattle farming (specialised)
- Higher education
- Local government administration

LARGEST INDUSTRIES REGIONAL
(gross value add)
- Education and training
- Agriculture, forestry and fishing
- Construction

PRINCIPAL AGRICULTURAL COMMODITIES
- Livestock
- Vegetables
- Nurseries, cut flowers, cultivated turf

About the Armidale Region and Uralla Shire

New England region

Armidale Region and Uralla Shire form part of the southern extent of the broader New England region which is characterised by landscapes in the tablelands of the Great Dividing Range in the east, to the rich black soils of the west. The New England region is home to successful agricultural industries and stunning natural landscapes which draw new residents and visitors each year.

Other Regional Drought Resilience Plans have also been developed for surrounding areas in the New England region including Tamworth and Walcha, Gwydir and Inverell, and Glen Innes Severn and Tenterfield. This plan has regard to the shared regional values expressed within neighbouring regional drought resilience plans across the New England region, while focusing on the specific local conditions of, and opportunities for, the Armidale Region and Uralla Shire.

Armidale Region and Uralla Shire are expecting to see an increase in the average age of its working population. Advances in technologies and the creation of new job opportunities, such as the evolving renewable energy industry and New England Renewable Energy Zone, will also shape the future population. Regional economic strategies seek to further grow the local education sector, local agri-business and visitor economy expansion.

The agricultural strengths of the region are uniquely supported by the education and research capacity enabled by the University of New England. The University contributes to broader land management innovations, which position the region at the forefront of agricultural technology uptake and practices such as regenerative agriculture.

The key economic drivers of the region include agriculture, education and training, tourism and renewable energy.

The Anaiwan and Kamilaroi First Nations peoples

The Anaiwan Nation and Kamilaroi Nation hold a deep historical connection to the Armidale Region and Uralla Shire.

The Anaiwan Nation spans the Northern Tablelands of NSW. Mt Yarrowyck is home to the well-known Aboriginal rock art and numerous other historical and cultural aspects of the Anaiwan. The Uralla Shire area encompasses many Aboriginal artifacts within its bushland and national parks such as shield scar trees, stone tools, ochre quarries and flat pound grinding stones used for making seed derived flour.

The Kamilaroi/Gamilaroi/Gomeroi Nation encompasses about 30,000 square miles of land. Colonisation drastically changed their way of life, leading to dispossession and cultural suppression. The history of colonisation has left a lasting impact on Aboriginal and Torres Strait Islander languages. However, there are ongoing efforts to revive and preserve the Gamilaraay/Yuwaalaraay and Anaiwan language, with courses now available through institutions like the Australian National University and the Nēwara Aboriginal Corporation.

Despite past injustices, the descendants of this nation continue to occupy and cherish their ancestral lands today.

Figure 2 — Regional Drought Resilience Plan Region

Armidale Region

The Armidale Region includes the centres of Armidale and Guyra, supported by the villages of Wollomombi, Ebor, Black Mountain, Hillgrove and Ben Lomond. These smaller villages contribute to the broader regional identity and are filled with unique history and picturesque natural landscapes, including the World Heritage Listed Wollomombi Gorge, and New England, Cathedral Rock and Guy Fawkes River National Parks. The high-altitude environment of the region supports unique ecosystems, and the surrounding landscape features a mix of open farmland, and native forests.

As a regional city, much of the anticipated population growth for the region is projected to occur in Armidale. The city is home to the University of New England, a mainstay of the local economy and an economic driver for the region. The University contributes to a diverse economy, a relatively younger average population compared to other areas across the New England region, and maintains strong connections to agricultural industries and research.

Guyra provides a smaller regional centre that serves the surrounding rural area and retains a strong community identity that also promotes its role as a hub for outdoor adventure and nature activities.

The natural setting of the Armidale Region provides the backdrop for a thriving visitor economy that benefits from a favourable climate and location, being mid-way between Sydney and Brisbane with easy access to the coast.

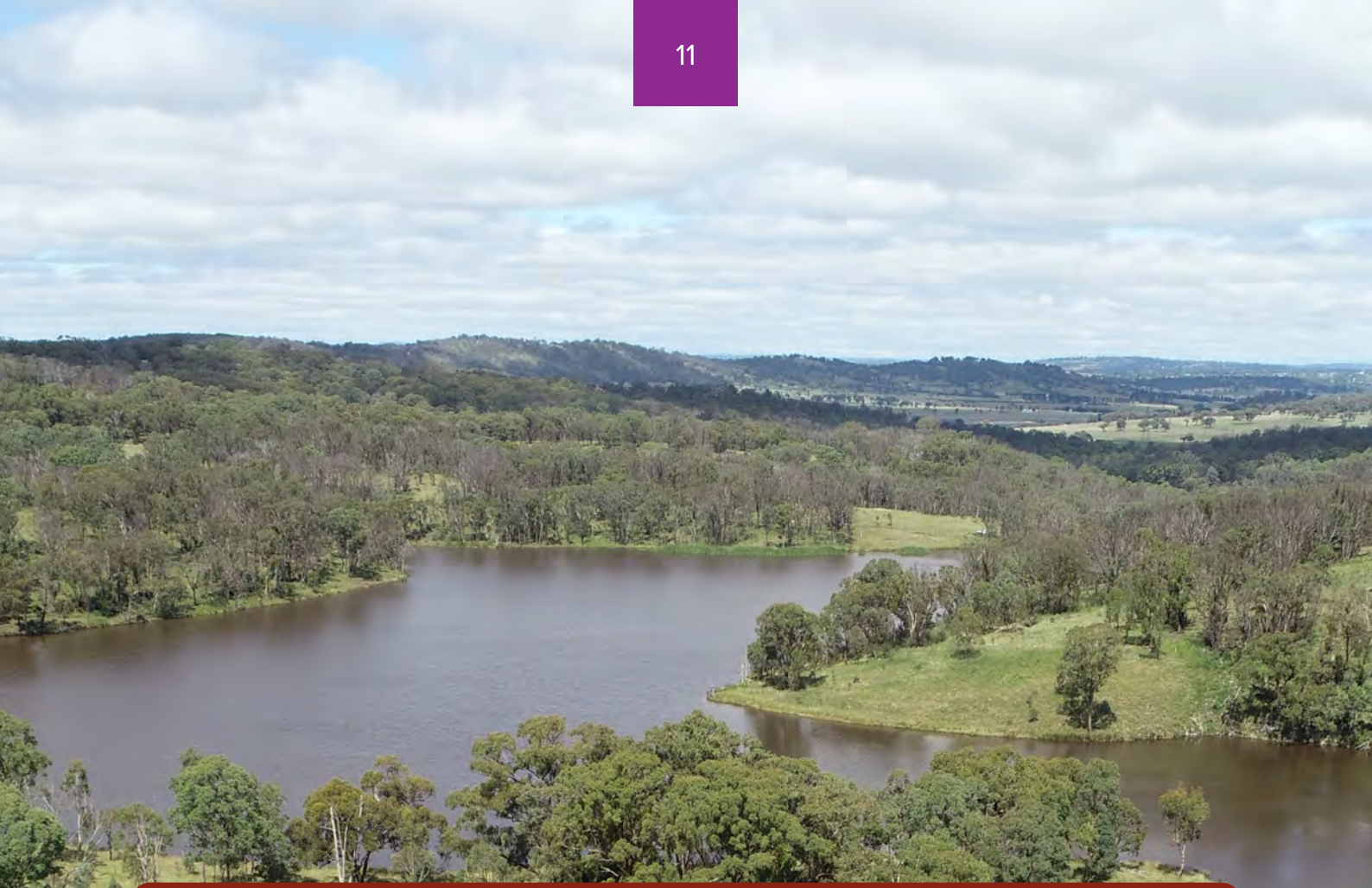
Uralla Shire

Within the Shire, the Uralla township is supported by the localities of Abington, Arding, Bakers Creek, Balala, Boorolong, Briarbrook, Bundarra, Camerons Creek, Dangarsleigh, Dumaresq, Enmore, Gostwyck, Invergowrie, Kentucky, Kentucky South, Kingstown, Mihi, Rocky River, Salisbury Plains, Saumarez, Saumarez Ponds, Torryburn, Wollun and Yarrowyck.

The Shire experiences cooler temperatures and high elevation that provides a suitable climate for a range of primary production activities. The geological history of the area has endowed it with fertile basalt soils, making it ideal for agriculture including sheep and wool, viticulture and fruit production.

Uralla's country character and attractive natural environment underpins the town's growing tourism sector. With a breadth of history reflected in the heritage listed buildings, the town is a popular destination for the surrounding region and those travelling through, benefiting from popular commercial offerings within the Uralla township.

The Shire is rich in natural and cultural heritage, with 1,262 hectares of national parks and two nature reserves. Bulagaranda (Mount Yarrowyck) Aboriginal Area protects an Aboriginal cave painting site and a significant natural environment, while Stony Batter Creek Nature Reserve is home to over 280 native plant species.



NSW Aboriginal Water Strategy

The Department of Climate Change, Energy, the Environment and Water is in the process of developing the *NSW Aboriginal Water Strategy and Action Plan: increasing rights and access to water for cultural and economic purposes* The strategy aims to recognise Aboriginal peoples water rights and values. It aims to increase access and ownership of water for cultural and economic purposes. The strategy supports the inherent need for Aboriginal people to have appropriate involvement in water governance and responsibility in managing waterways and cultural sites.

Water holds deep cultural significance across Australia, as reflected in Dreamtime stories and local knowledge passed down through generations. These stories highlight how Aboriginal and Torres Strait Islander peoples have integrated water sources, their supply, and management into both their Dreamtime narratives and land stewardship practices.

The strategy's intent is to not work in isolation but coincide with exciting plans and strategies throughout the state and Australia wide. Four major objectives are drafted, with a range of actions to be finalised to support implementation:

- Strengthen the role of Aboriginal people in water planning and management.
- Provide Aboriginal ownership and access to water for cultural and economic purposes.
- Work with Aboriginal people to improve shared water knowledge and capacity.
- Work with Aboriginal people to maintain and preserve water-related cultural sites and landscapes.

How this plan was prepared

This plan adopts a systems-based approach to address the complex challenges of drought, recognising how these challenges can intensify when they interact. It builds an understanding of local context and drought impacts by considering economic, environmental, and social factors, while acknowledging that these impacts are not experienced in isolation.

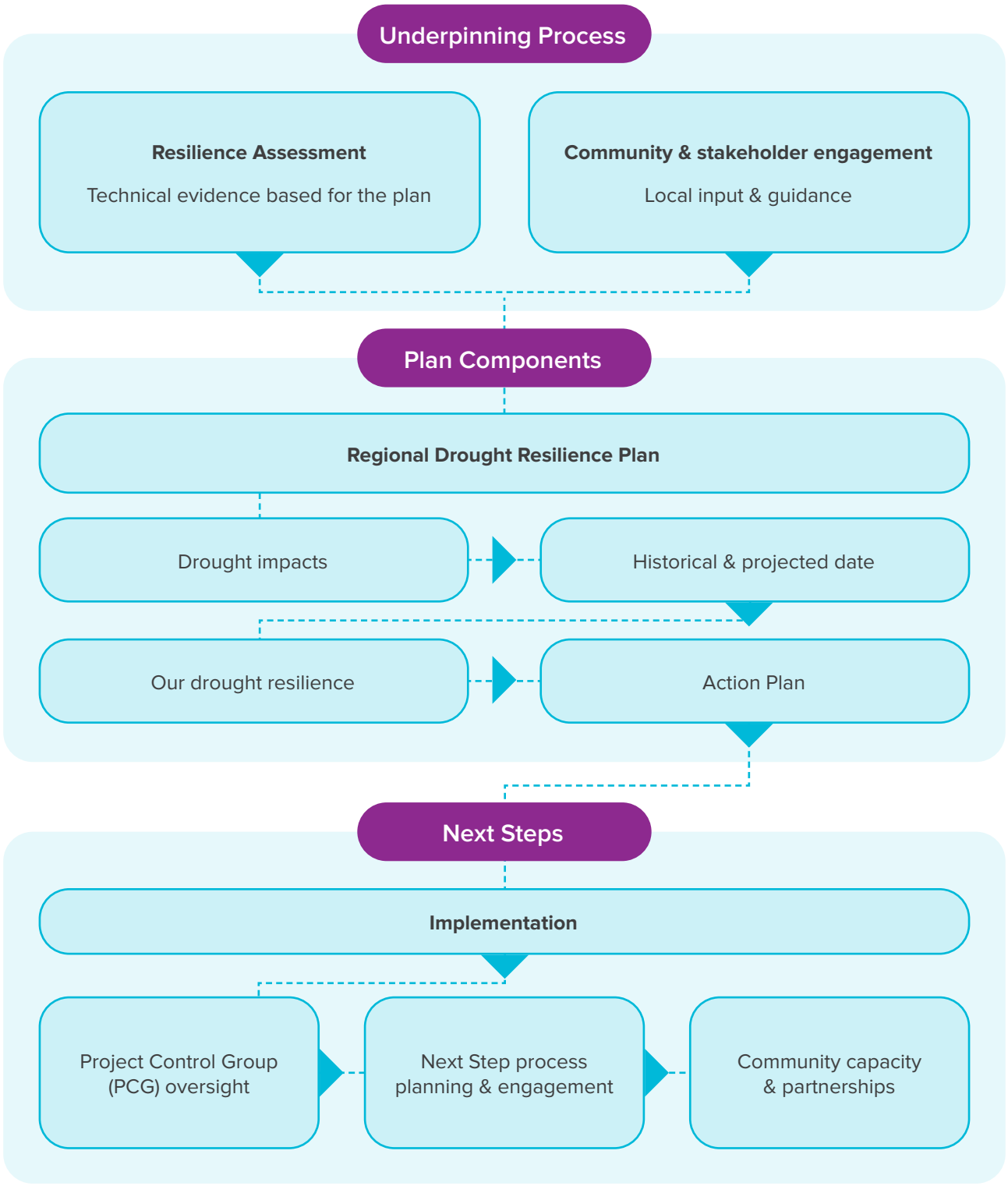


Figure 3 — Components of the plan

A stakeholder-driven approach

The stakeholder and community consultation program involved a number of approaches which allowed the project to reach a diverse range of the population. Stakeholder input was used to develop a shared understanding of local drought resilience strengths and opportunities for continuous improvement both on-farm and off farm.

Being an agriculturally rich and productive community, capturing on-farm sentiment and support is an important component of the plan. However, it was also recognised that through drought, broader flow on impacts are felt across local towns, smaller centres and across local businesses and community groups. To address these areas targeted engagement was undertaken with stakeholders with knowledge across economic development, community support and services, and environmental management and advocacy.

Having these discussions at an individual and community level seeks to build more community ownership and direction to the plan and broaden its use beyond local government to all affected by drought.

Community workshops in Armidale and Uralla which provided a forum for facilitated discussion and detailed insights on the more localised impacts across the community.

Targeted stakeholder meetings were conducted with key organisations and representatives who work across the economic, social and economic aspects of the region.

Pop-up stalls at high visitation areas in other local centres across the region including Guyra and Bundarra.

Online survey promoted through councils and local groups to contribute to action planning.

Continued engagement with stakeholders is essential for the effective implementation of this plan. Refining actions, building partnerships, and a focus on underrepresented groups will form the nature of the continued engagement. This ongoing focus is essential in building trust with existing organisations already operating in this space.

It is acknowledged that there are a range of existing engagement activities and initiatives outside the scope of this RDRP which can be leveraged and integrated into the plan.

Let's Talk About Water: ZNet Uralla Community Consultation

Following the severe drought of 2017-2019 in which immense pressures were placed on water security in the Uralla Shire, a number of response measures were initiated. ZNet Uralla Inc, a community-based group focused on broad sustainability initiatives, received funding to conduct informed community consultation that mapped community values and how these relate to possible responses to water scarcity.

The project was conducted in partnership with the University of NSW and in consultation with Uralla Shire Council. It involved sensitively unpacking the issues that occurred during the drought and application of community values and technical approaches.

ZNet Uralla produced the Let's Talk About Water report which involved a robust community consultation process with surveys, stakeholder interviews and targeted focus groups. While developed outside of the local council and of the broader technical operations, it retains great value in the sentiment expressed through the report findings and the dialogue with the community. This is amplified by the fact it was conducted immediately after the drought, with the experience still fresh in mind.

The report framed a broad understanding on how community feels about different water security options for the shire.

The options were considered with concerns about environmental impacts and resource competition in mind. Options like using recycled water for non-drinking purposes and rainwater tanks aligned strongly with community values, while increasing dam capacity had uncertain support.

Sinking bores and linking to a regional pipeline were seen to need careful consideration due to concerns regarding over-extraction risks and regional competition. Recycling water into Kentucky Creek Dam received mixed reactions, due to a limited experience with such technologies, however its potential in a resource-constrained world was recognised. The community strongly opposed any inaction on securing future water supplies, reflecting the hardships from the drought and arsenic contamination on water supply in 2019.

Engagement outcomes and key community insights informing the plan

Being ready to capitalise on the productive times. With knowledge that drier periods lie ahead, there is importance on preparing to make the most of prosperous times. This readiness helps maintain a stable baseline of functioning. Success lies in managing the cycles of boom and bust.

'This doesn't happen to us'. This was a feeling during 2019 given the usual high rainfall and cooler climates the community had become accustomed to. The severity of the recent drought was a shock to many.

Strong community connections are built outside of drought times. During the drought the importance of community was clear with people, groups and organisations stepping up. To avoid tensions across these relationships, clear discussions are needed in advance of drought to provide clarity in decisions.

Behavioural change successes. During the previous drought a range of behavioural change initiatives were implemented regarding water efficiency and conservation. Since water restrictions were removed, there is evidence of reduced water usage compared to the pre-drought baseline.

Economic growth discussions. There are broader economic ambitions and growth desires which may need to be managed and considered within the context of changing drought conditions. This forms part of water security discussions and integrated water management plans developed by councils.

Ecosystem of partners and capacity building. There are existing community capacity and networking events delivered by well-regarded organisations. The region is home to a range of events that offer both learning based and social opportunities.

Spectrum of uptake across regenerative and sustainable agricultural practices. Holistic management is being facilitated by key organisations with high interest from the community. A crucial challenge is converting this interest to ongoing practice.

Communication during the last drought did not reach all in the community, particularly peri-urban land holders and smaller sized hobby farms (non-business). This also builds on local research and insights which are specific to the different impacts between peri-urban dwellers and other sections of the community.

The speed of change for technology and farming practices can make it difficult for some to maintain pace. This is compounded by the rapid cycles of interlinked or cascading events and changing trends impacting operations. This results in challenges to plan with a feeling of being in a state of constant response or recovery.

There are other cumulative impacts to individual and community psychology during drought. This can be hard to measure but is noticeably felt across community. Adding to this, mental health assistance remains a struggle in regional areas. What is available, or becomes available during drought, is not enough.

Drought relief and assistance is largely supportive of the agricultural sector. This sector is acutely affected, but there are other cohorts that are also affected and must likewise plan ahead and consider potential impacts.

Plan framework linkages

The following displays the links between the guiding principles presented at the plan framework and the key inputs whihc informed the plan.

Connected across the community

This is a feature of why people live in the region. An aspect of how the community stepped up during the last drought and the need for social cohesion to be maintained under future pressures. This principle is also evidenced through research on the vitality of rural communities and is a common thread across community strategies for the region.

Proactive governance and action

This reflects a feeling that during previous droughts some interventions were too late, or the interventions would have been more effective outside of drought. This also recognises that governance played an important role last drought through clear messaging and across sections of the community.

Prepared for boom and bust

Research indicates the extent of historical droughts and projected changes in rainfall patterns under a changing climate. Community engagement highlighted a well-developed understanding that conditions are changing and that there is a need to be ready to be productive in the good times to build contingency for lower rainfall periods.

Acting together

The region has a strong ecosystem of actors supporting drought resilience and is built through existing partnerships in program delivery. This principle recognises these existing networks in the region and the strategic assets.

Scenario ready

There was a feeling by some during the last drought that ‘this doesn’t happen here’, based on the usual high rainfall averages associated with the region. There is a need to ensure readiness, particularly under changing conditions and recognising the historic droughts.

Land stewardship

The region is already a hub for land management practices built on educational assets, organisations, and land holders who actively seek to evolve practices and engage with holistic management. This extends off-farm to the community values which are so closely linked to the natural environment of New England.

Strategic alignment

This plan aligns strategically with international-scale goals and commitments, including the United Nations Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction, as well as with national, state and local strategies include (but is not limited to):

- NSW State Disaster Mitigation Plan 2024 – 2026
- NSW Climate Change Adaptation Strategy
- New England North West Regional Plan 2041
- Southern New England High Country Regional Economic Development Strategy (2023 update)
- NSW water strategies (Gwydir Regional Water Strategy, North Coast Regional Water Strategy, NSW Water Strategy, NSW Aboriginal Water Strategy, NSW Groundwater Strategy)
- Southern QLD and Northern NSW Drought Hub research
- NSW Government Department of Primary Industries and Regional Development DroughtHub
- Department of Primary Industries and Regional Development Drought Signals Dashboard
- Commonwealth Government Drought Resilience Self-Assessment tool
- Department of Primary Industries and Regional Development Climate Vulnerability Assessment
- Armidale Regional Council and Uralla Shire Council strategies, plans and reports

How our region is impacted by drought

Discussions with stakeholders, along with review of local historical literature, research sources, and survey feedback, have identified the following major impacts resulting from previous drought events. Alongside other components of the plan, these impacts form a basis to direct actions.

Social and community

- Social isolation due to increased on-farm responsibilities or tendency for some to withdraw
- Increased pressures on mental health, through impacts to individuals and families, and knowing personally those significantly affected
- Family and relationship breakdown
- Increased domestic violence and substance abuse
- Community tensions over water conservation and use
- Further strain on preventative and health support
- Highly valued vegetation and landscapes degraded
- Use of remaining water for fire-fighting during times of drought

Economic

- Reduced productivity, outputs and income
- Business stress and closures, and reduced access to services (or higher demand placed on existing services)
- Increasing costs of living and farming inputs
- Reduced discretionary spending in towns and villages
- Pressures associated with decisions on stocking and cropping rates or changes in commodity prices
- Reduced on-farm production and more reliance on off-farm income
- Maintaining cash-flow and debt servicing
- Fodder and water availability, increases in cost and lower quality within competitive market
- Destocking and loss of livestock bloodlines

Environmental

- Loss of vegetation and greenery is a visual gauge for the region
- Tension between domestic, industry and agricultural uses of water
- Groundcover loss
- Tree and vegetation dieback, and associated biodiversity impacts
- Groundwater availability and recharge
- Reduced water levels and associated impacts on water quality
- Dust storms
- Increased risk of bush fire and grass fire
- Animal / stock nutrition
- Biosecurity and pest outbreaks
- Reduced root zone soil moisture
- Inland wetlands (e.g. Mother of Ducks Lagoon) at greater risk of increased frequency of drought events, impacting local biodiversity loss
- Risk of roadside death of fauna seeking food and associated personal safety impacts

Interconnected nature of drought impacts

The interconnected nature of impacts from drought can expose new challenges and amplify existing vulnerabilities within the region. These impacts are closely tied to the health of the landscape and natural environment, which sustain agricultural production and economic strengths of the Armidale Region and Uralla Shire and are closely linked to the intrinsic values held by the community.

While this presents difficulties, it also provides an opportunity for actions under this plan to address multiple issues. Building an understanding of the system and interlinkages of drought is a first step in achieving this.

Interlinkages and vulnerabilities

Drought, and the impacts from drought, occur in conjunction with broader systems. Previous drought events have had significant impacts on the region over recent years, and the rapid pace of dealing with each event as well as compounding events limits recovery windows. These events not only contribute to one another, impacting infrastructure and preparedness planning, but also play out within broader trends.

The system components which frame resilience can be organised around economic, social, environmental and governance systems. Building resilience within each of these systems supports the whole due to interactions. Conversely, impacts within one area influences the function of others.

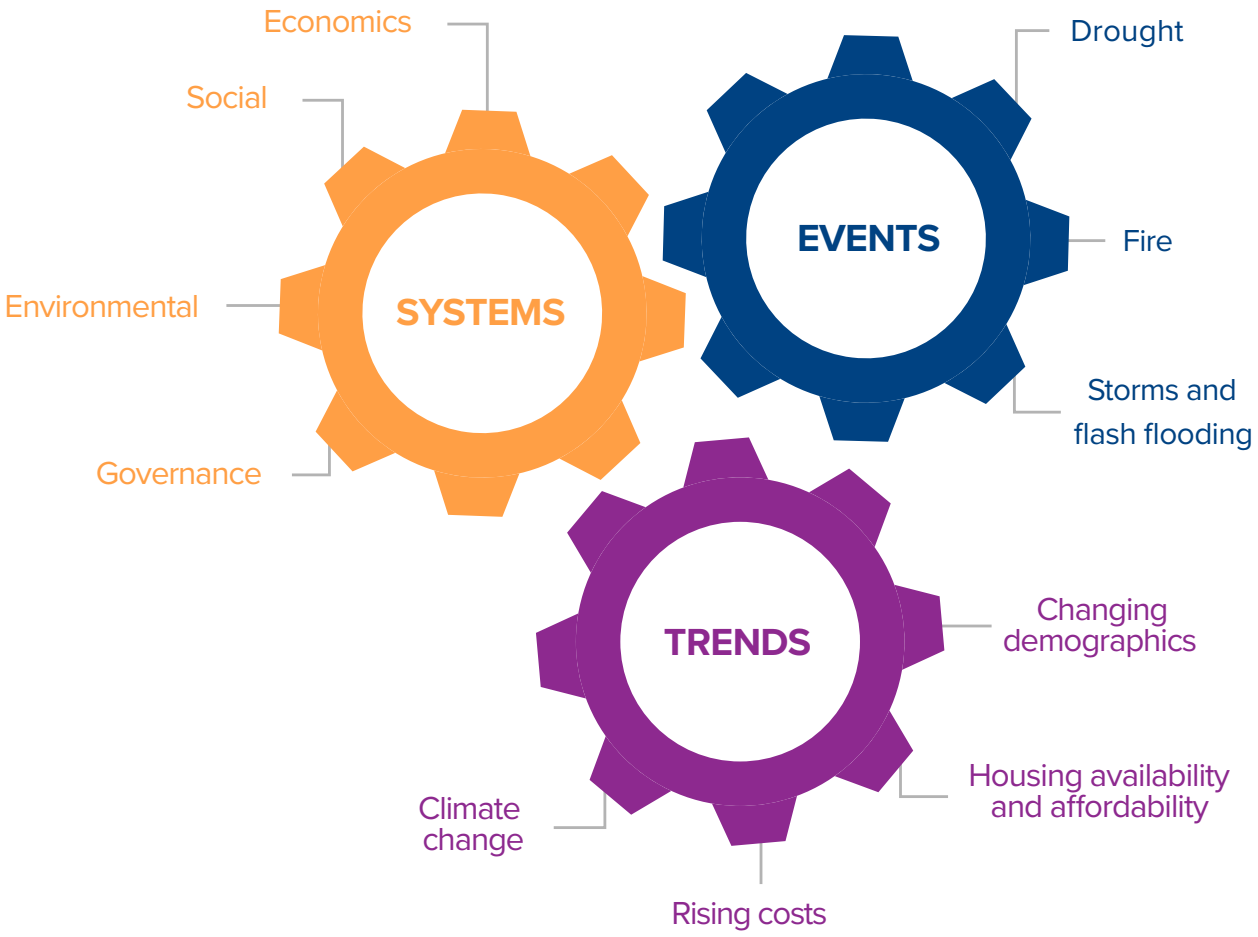


Figure 4 — Interlinkages of systems which influence drought impacts

Vulnerability to drought is equally complex, and equally dynamic. At the regional-wide scale, issues that can increase vulnerability to drought, as identified by existing strategies in place and community consultation, include:

- ✓ **Water supply and water security**
- ✓ **Quality of transport connections and access to public transport**
- ✓ **Community wellbeing and health**
- ✓ **Housing availability and affordability**
- ✓ **Ageing workforce population**
- ✓ **Land and water degradation.**

Other Regional Drought Resilience Plans within the New England region, including for Walcha and Tamworth, identify similar potential drought vulnerabilities which tend to exacerbate its affects.

Trends, stressors and shocks

To strengthen preparedness for drought, we must also take into account other trends, stressors, and shocks beyond climate factors that could exacerbate the impacts of drought in the future. This can influence our resilience to different conditions, circumstances and scenarios. It is important to consider governance responses and strategic priorities, ensuring that broader actions are mindful of how they interact with drought in our communities.

Key trends and stressors that may interact with drought resilience in Armidale Region and Uralla Shire include:

Economic

- Cost of farming with rising inputs
- Commodity prices, market volatility and interest rates
- Fuel prices and transport costs
- Rapid pace of technology and efficiency improvements
- Policy changes between government, and assurance of certain funding
- Growth pressures and competition for water
- Cost of living pressures and local discretionary spending

People and Community

- Service availability, particularly health and community services
- Access to health professionals
- Changing demographics, including an aging workforce
- Housing availability and affordability pressures
- Funding certainty for community programs
- Declining volunteerism rates
- Urbanisation and population mobility trends

Environmental

- Weed invasion and invasive species
- Soil erosion
- Loss of significant flora and fauna
- Risk of vegetation dieback
- Domestic and agricultural water security
- Water infrastructure projects and funding decisions

Drought history

Droughts and its impacts vary based on different macro influences and local conditions of the time. Differences between drought are evident in intensity, duration and severity, with some shorter droughts still having significant impact with a rapid onset. What is common is that each drought has impacts and can expose vulnerabilities of the time.

Major droughts in Australia have affected the Armidale Region and Uralla Shire through periods of low rainfall, leading to low soil moisture. While these time periods are used to describe national droughts, the effects are not necessarily limited to these years as some drought impacts are experienced locally earlier and can last for many years following the droughts formal end date.

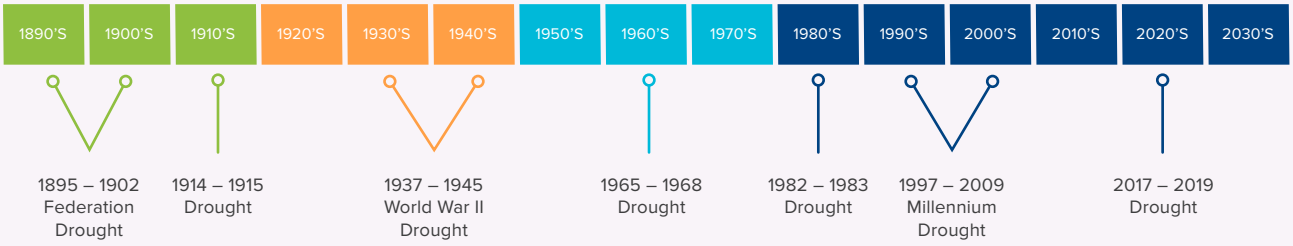


Figure 5 — Significant drought periods identified by the Bureau of Meteorology

The below timeline illustrates some of the localised impacts during the identified major drought periods. A more comprehensive assessment of drought history is provided at Appendix A and the supporting Resilience Assessment, drawn from historical climate data, as well as analysis of a variety of sources providing commentary on the drought of the time.

What it illustrates is that the region, despite its high average annual rainfall, is not immune from the impacts of drought and this extends beyond the more recent 2017-2019 drought.

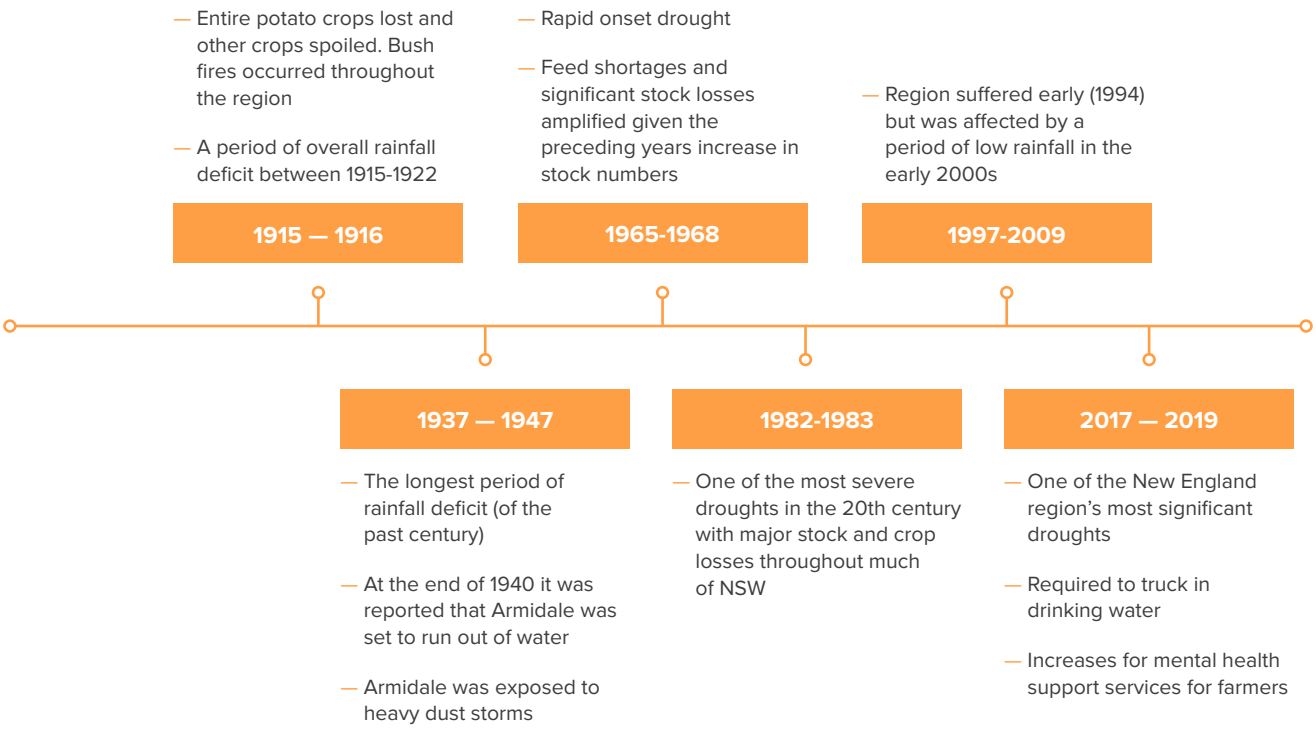


Figure 6 — Drought timeline, regional impacts of note for each drought period

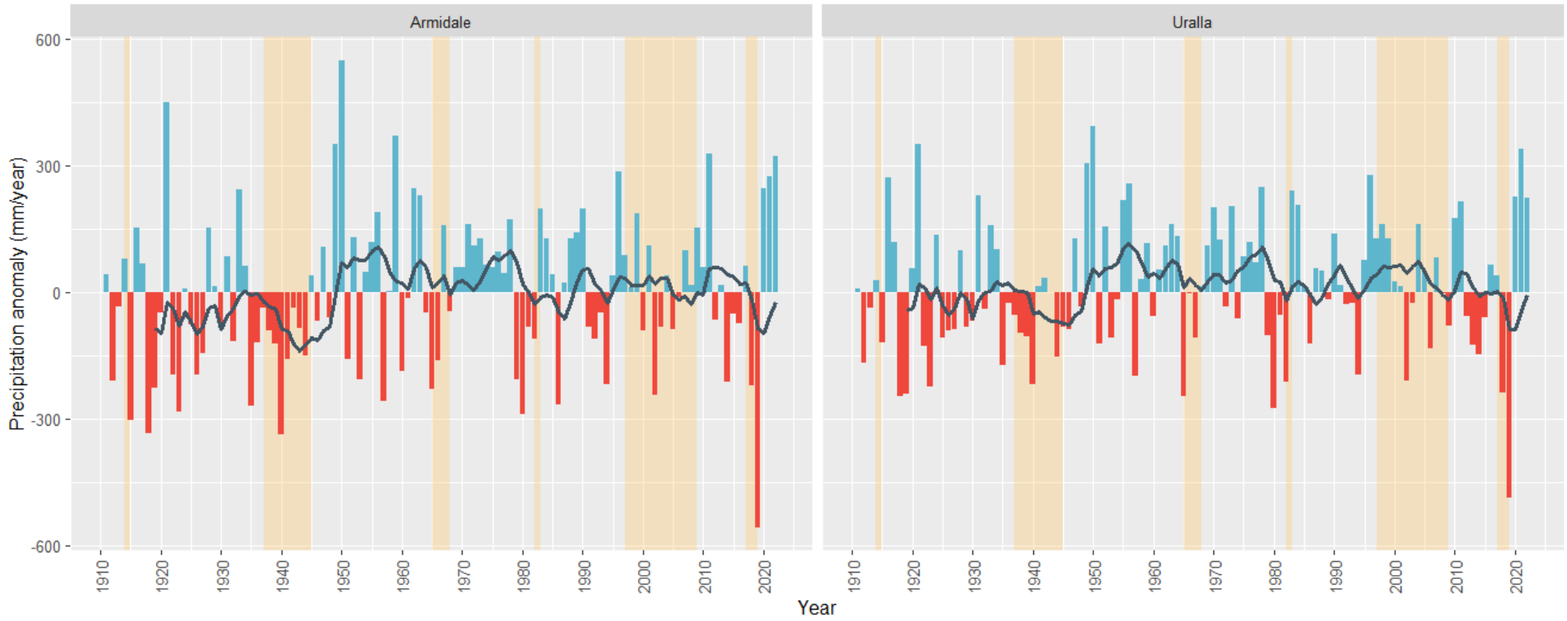
In Figure 7 and Figure 8, major droughts defined by the Bureau of Meteorology are considered against a present-day baseline of 2002 to 2022, with drought periods highlighted.

The region experiences year-to-year fluctuations in soil moisture and precipitation with drier years often followed by significantly wet years.

The early 1950s featured significant rainfall as well as in the early 2020s. The early 1940s, during the World War II drought, as well as the late 1970s, early 80s and 90s display periods of dryness, with the recent events of 2017-2019 displaying distinct drying, particularly for soil moisture.

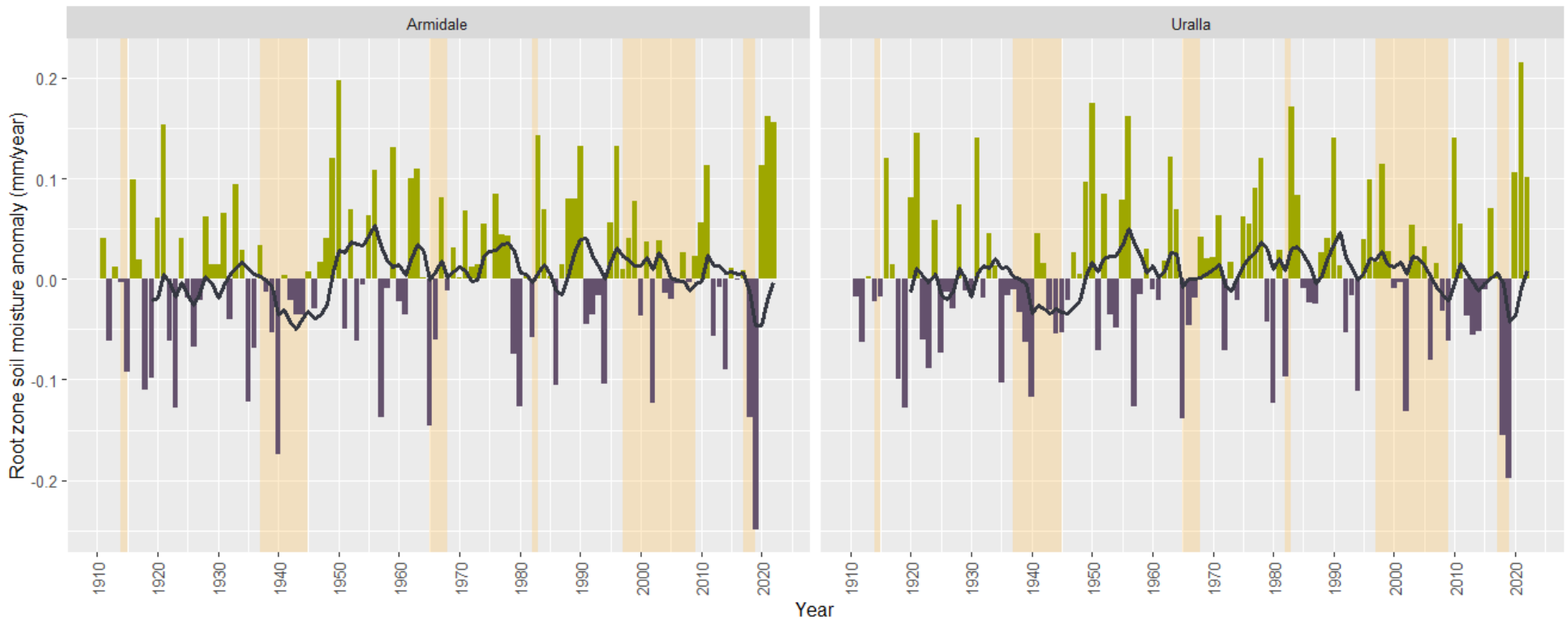
There is a noticeable trend for the Armidale Region and Uralla Shire of drier years in the preceding years of identified drought periods. A comprehensive synthesis of historic drought climate data specific to the region is included at Appendix A.

Figure 7 — Precipitation anomaly (1910 to 2022), compared to baseline period of 2002-2022 (rolling 10 year average)



Compared to a baseline period of 2002 to 2022. Rolling average based on previous ten years.

Figure 8 — Root zone soil moisture anomaly (1910 to 2022), compared to baseline period of 2002-2022



Compared to a baseline period of 2002 to 2022. Rolling average based on previous ten years.

A focus on the 2017-2019 drought

The impacts of the 2017-2019 drought on the region were unprecedented on many fronts. Rainfall deficiencies, particularly through 2018 and 2019 and the root zone soil moisture level being the lowest ever recorded were significant features of the drought. As a result of this, it was reported that much of eastern Australia suffered from massive native tree canopy die back, including the eucalypt forests in the New England region.

While environmental effects of drought can be observable, it is difficult to quantify the loss of biota within the region. Community engagement in the region highlighted how impacts on the vegetation provided a visual cue to the impacts of drought. This is linked to both the values of the community, and the rich landscapes which are so synonymous with the region. The economic aspects of this drought were endured by rural enterprises and businesses not directly linked to the agricultural supply chain, with reduced discretionary spending disrupting the local economy.

There was also a markedly noticeable increase in the demand for mental health services at the University of New England's psychology clinic. Whilst not a crisis service, it saw a major rise in demand for services. Both communities endured months of water restrictions on domestic water usage and low supply levels in local dams. This resulted in both Armidale Regional Council and Uralla Shire Council with day-zero scenarios where the water supply was nearly completely depleted.

Image - Photo credit Michael Hull

Uralla's day-zero experience

The Kentucky Creek Dam is the principal water source for Uralla's town drinking water. While a previous Council assessment indicated water supply security into the medium term until 2044), demand exceeding supply in a dry year occurred much sooner during the 2017-2019 drought. As the dam fell below 30% it experienced toxicity issues resulting in the Council issuing a "Do Not Drink Alert". Had the drought have continued at the time, the Dam would have been empty within a five-month period.

By mid-2019, Uralla Shire Council commenced trucking in drinking water. The impacts of this coincided with record temperatures and bush fires across Australia, building further anxieties across the community. Effects of the water security issues extended across families managing the day-to-day, town businesses impacted by availability of discretionary spending, and ongoing impacts of the drought hitting across the business and household of rural enterprises.

While the Dam was refilled to capacity in February 2020, a "Do Not Drink Alert" remained in place for two months after significant rain was received. Emergency water restrictions did not ease until early June 2020.

In response to these events and through allocation of grant funding to improve water security in the Shire, Uralla Shire Council commenced the Uralla Groundwater Project to investigate the potential availability of a back-up water supply source for future emergencies such as drought. This forms one aspect of broader strategic work undertaken in regard to water security in Uralla Shire which remains a priority for the shire.

Facing day-zero in the Armidale Region

In 2019 the prolonged drought had rapidly reduced Armidale's major town water supply in the Malpas Dam. In response Council introduced water restriction in both Guyra and Armidale.

Towards the end of 2019, Armidale Regional Council was facing the serious prospect of needing to cart in water should drought conditions not ease. The Malpas Dam to Guyra pipeline opened in 2019.

Armidale Regional Council rolled out an effective waterwise campaign which delivered clear messaging around restriction levels, the types of activities restricted and recommended daily water usage. The community responded to these challenges with sharp decreases in water usage as new restriction triggers were introduced.

Council contacted businesses to assist in implementing a Water Saving Action plan, with major water users offered audits, water saving promotional packs and access to business rebate schemes. A residential water saving rebate scheme was introduced as part of the move to level 5 water restrictions, with financial assistance to buy rainwater tanks and water efficient machines, toilets and shower heads.

The response from community across the Armidale region in the face of day-zero demonstrates their attitude during tough times and the lessons since learnt. Whilst water usage has increased since the drought broke as expected outside of water restrictions, there has been a notable decrease in the average water usage across the community. It has not returned to pre-drought consumption levels (based on data from Armidale Shire Council). This is linked to continuous improvement in water consumption and sustainable water usage, and highlights how certain measures have benefit outside of drought events (such as investment in water storage and efficiency) to be ready for dry times.

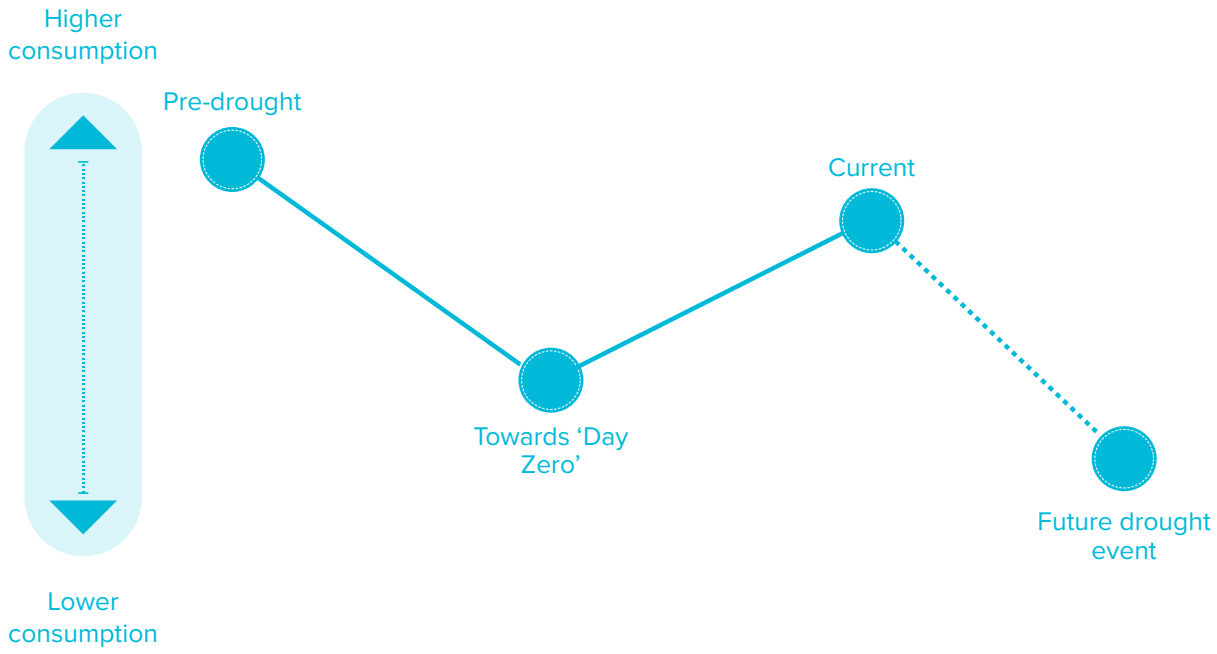


Figure 9 — Concept of continuous improvement of water consumption

Future drought

Future climate scenarios

According to the Intergovernmental Panel on Climate Change (IPCC) reporting, under all emissions scenarios considered global surface temperatures will continue to increase until at least the mid-century. Increasing global surface temperatures and energy within the climate system are projected to result in widespread changes to weather and climate patterns, including drought and all elements of the water cycle. Regional climate projections also display increasing temperatures and increases in frequency of very hot days across the Armidale and Uralla region.

Current climate models do not account for global climate tipping points. This means that the effects of tipping points are typically not included in climate projections and impact assessments. Breaching global climate tipping points represents significant risks on top of the changes typically described in climate assessments.

The below section presents projections of drought and associated climate conditions which are assessed over two possible future climate scenarios using regional climate model ensembles. The IPCC's Representative Concentration Pathways (RCP) 4.5 and 8.5 are used. RCP 4.5 models mean global warming of between two to three degrees Celsius and is the most likely future scenario based on current climate commitments. RCP 8.5 is a mean global warming of four degrees Celsius or more. This is considered a worst-case scenario.

Regional drought climate indicators

- A decrease in annual rainfall and decrease in root zone soil moisture under both emission scenarios.
- Increase in days above 35 degrees, being more severe under emissions scenario RCP 8.5. Increases impacting evapotranspiration which can compound under reduced rainfall.
- Other climate and weather-driven events like heatwaves and bushfires / grass fire may interlink with future drought events.

Below projections of these indices use an ensemble of CSIRO's Electricity Sector Climate Information (ESCI) datasets (days above 35°C and days above an FFDI of 25).[3]

Armidale

Variable	Climate model reference period	2050 RCP4.5	2050 RCP8.5	2070 RCP4.5	2070 RCP8.5
Root soil moisture	38%#	↓ 0.032 mm^	↓ 0.039 mm^	↓ 0.035 mm^	↓ 0.042 mm^
Annual total precipitation	896 mm	↓ 19 mm	↓ 21 mm	↓ 22 mm	↓ 14 mm
Days above 35°C	Less than 1	2 ↑ 2	4 ↑ 4	Data unavailable	
Days with FFDI above 25	3	5 ↑ 2	7 ↑ 5		

Uralla

Variable	Climate model reference period	2050 RCP4.5	2050 RCP8.5	2070 RCP4.5	2070 RCP8.5
Root soil moisture	28%#	↓ 0.024 mm^	↓ 0.040 mm^	↓ 0.025 mm^	↓ 0.026 mm^
Annual total precipitation	756 mm	↓ 19 mm	↓ 11 mm	↓ 16 mm	↓ 2 mm
Days above 35°C	3	7 ↑ 5	10 ↑ 7	Data unavailable	
Days with FFDI above 25	7	12 ↑ 5	15 ↑ 8		

Mean water content as a percentage of capacity.
^ Change (mm/yr) in relative soil water content of the 1976-2005 reference period's relative soil water holding capacity.

3 CSIRO n.d., ESCI Climate Data, Department of Industry, Science, Energy and Resources. Available at: https://www.climatechangeinaustralia.gov.au/en/projects/esci/esci-climate-data/

Annual precipitation

Figure 10 presents the annual precipitation across the region using the reference periods of 1976-2005 and then two timescales of 2036 to 2065 (2050) and 2056 to 2085 (2070) using the moderate emissions scenarios of RCP4.5. The region is coloured to represent annual precipitation changes from the baseline period.

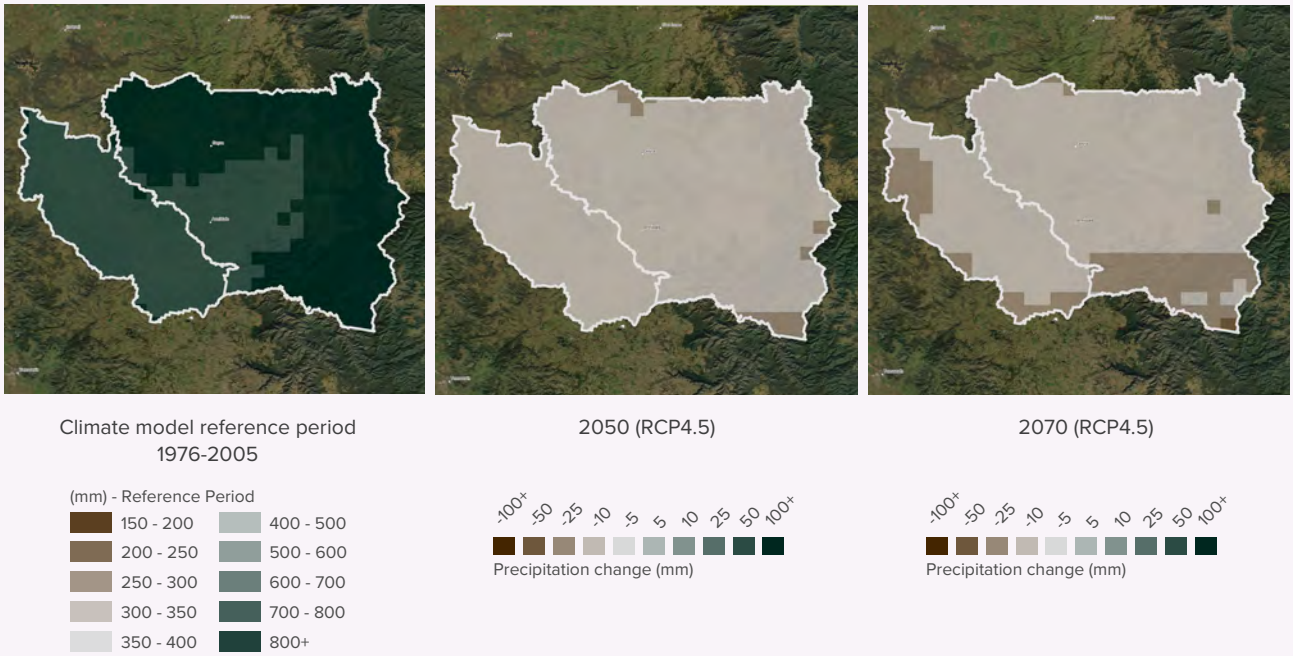
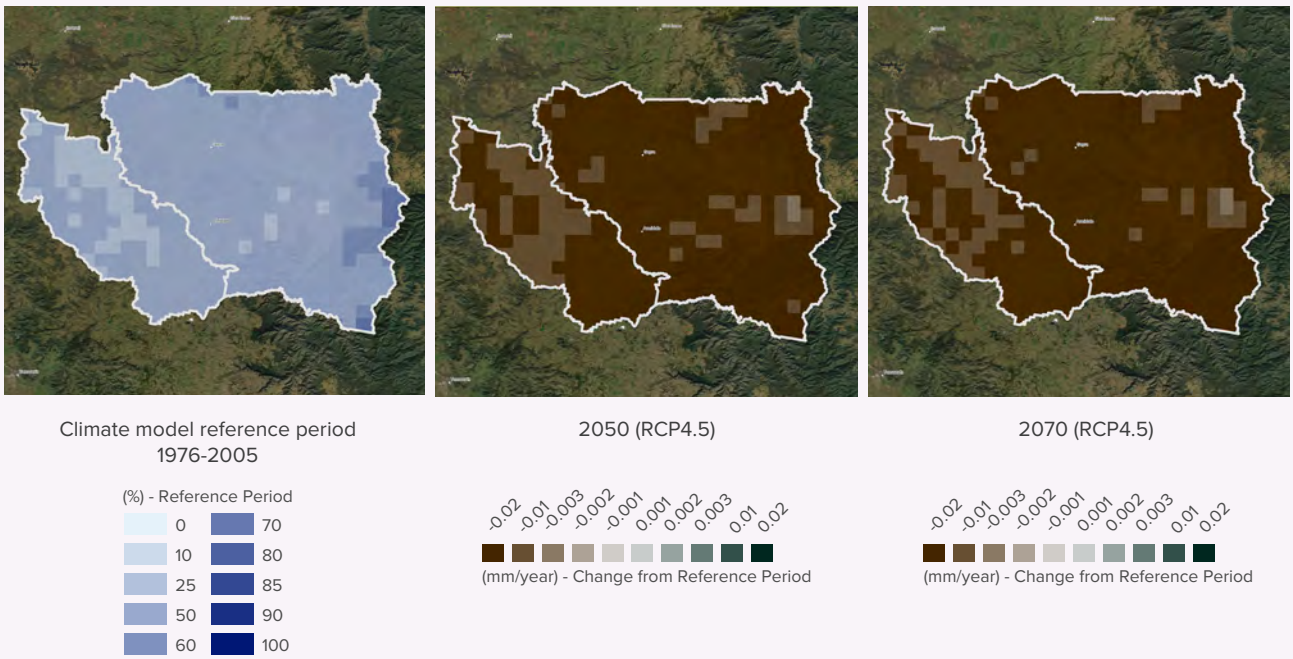


Figure 10 — Average annual precipitation changes across reference periods (2050 and 2070)

Root zone soil moisture

Root zone soil moisture (RZSM) is presented as a percentage of total capacity during the baseline reference period and as a change of millimetres per year of the climate adjusted scenarios. During the reference period, the Armidale Region had a root zone soil moisture capacity of around 38%, while Uralla Shire was slightly lower at 28% capacity. Under a moderate emissions scenario, both Armidale Region and Uralla Shire will see a decrease in soil moisture in both the short term (2050) and long term (2070). The RCP 8.5 scenario shows a more significant decrease in moisture capacity each year for both LGAs.



RZSM%

What does the climate data tell us?

While the region experiences relatively high average annual rainfall, past drought events have demonstrated this is not always guaranteed. Under climate projections for the region, typical drought indicators display reduced rainfall and increases in hot days per year, alongside increasing temperatures expected.

Warm years and maximum temperatures can coincide with drought years affecting the severity. This was the case in 2019 which had the warmest year on record for both average temperatures and maximum temperatures. Under higher emission scenarios, the increase in average temperatures will be higher, and this increase is greater in the west of the region.

The frequency of hot days (above 35°C) will also increase and is more severe the further west of the RDRP region and beyond. The Armidale Region and Uralla Shire experiences limited hot days currently, however there is projected to be a notable increase under climate change projections[4]. While days above 35°C or Forest Fire Danger Index (FFDI) are not direct indicators of drought, they describe weather conditions that often occur alongside drought or are exacerbated by.

Review of multiple climate projection models indicates that trends of annual precipitation is anticipated to decrease in the medium term (2050). The level of decrease reducing slightly in the longer term.

In addition to rainfall amounts, the timing of rain is critical to different stages of agricultural production. In the longer term, reduction in winter rainfall is expected to have the highest decrease.

Generally, climate indicators that provide insight into drought indicators show more severe changes in the west of the RDRP region, and across the broader New England region. With agriculturally strong areas in surrounding areas also experiencing elevated stress, this may impact the role of Armidale as a regional hub that supports transformational change, currently positioned in the broader New England North West region.

4 AdaptNSW 2024, New England and North West Climate Change Snapshot, https://www.climatechange.environment.nsw.gov.au/sites/default/files/2024-08/NARCliM2-Snapshot-NewEngland.pdf

Anticipated future climate impacts

The following explores potential climate change impacts across the plan's strategic pathways.

Economic

Agriculture is the key economic sector in the Armidale region and Uralla Shire, however given the impacts of climate change on agricultural production, there may be a need to diversify the range of agricultural products produced to support broader regional viability. The high-quality agricultural land supports a long-held sector strength with significant value-add in industries of education and manufacturing.

Both council areas comprise of smaller landholders who run 'hobby farms', generally not intended for income-generating purposes. These are borne out of passion for the land and lifestyle decisions and contribute to the broader sense of community identity and through owners filling key workforce positions across industries. Pressures under a changing climate and impacts to capabilities to run smaller scale farms could impact the lifestyle attraction of these enterprises.

The visitor economy is a growing sector within the region benefitted by collection of emerging artisan products. Risks arising from more prolonged droughts and fire weather can increase threats to tourism infrastructure, seasonal offerings and nature-based offerings. Towns like Uralla support an emerging boutique food and tourism-based retail enterprise which will need to address threats to water supply to ensure business and investor confidence is maintained. This may be the case where there is intent to broaden the current offering as identified in several strategies.

The region shall continue to benefit from a relatively cooler climate and seasonal variations, despite trends of increasing temperatures. There may be opportunity for towns within the region to offer farm-based experiences under more appealing conditions than those areas of NSW which are likely to experience higher temperatures increases.

Agricultural commodities

Changes to climate have inevitable risks to agriculture and its commodities. Of concern is the increased temperatures predicted and the heat stress this will incur on crops. Heat stress on crops impacts growth capabilities and presents cost limitations. Alongside this, heat stress affects soil composition and lead to soil erosion, organic carbon, nutrients and alkalinity.

Climate change is also likely to impact livestock production, which is significant for the region given the contribution to the region's Gross Value Product. Climatic changes may result in changes to pasture productivity which will ultimately alter carrying capacity on farms. Heat stress on animals can result in less productive reproduction periods, poor animal welfare and competition for food sources with wild animals encroaching on farmlands.

An increased frequency of extreme weather events impacts supply chains and further increases the uncertainty of trade patterns. These impacts can place further pressures on decision making, emphasising a need for planning with key triggers and building of decision-making capabilities.

Image - Photo by Michael Hull

Social and community

Social vulnerabilities under a changing climate include education and employment, with a potential decrease in demand for agricultural employment types during drought. Additionally, the gaps in service provision can be widened between major and smaller centres for community service requirements, access and delivery.

Community members employed in the agricultural sector (or those in associated sectors/roles) may be forced to relocate to areas as a result of either direct or indirect effects due to climate change on economic and environmental systems.

The likely increase in the frequency and severity of natural hazards may also strain the community and place pressures on existing vulnerabilities of individuals.

Impacts will be felt on those smaller land holders and properties operating hobby farms, which compete under the same market for inputs but with a much smaller scale. For the region, the role of this group within the community shouldn't be underestimated for the broader contributions to grassroots initiatives and community connectedness which are reflective of the region's values.

Environmental connectivity

The region comprises diverse landscapes including National Parks and State Forests. A changing climate will have repercussions on the local ecosystem and correlate with increased pressures on local biodiversity. Changes to rainfall not only impact water supply but are likely to impact inland wetlands.

Native eucalyptus trees that become drought stressed are at a high risk of mortality and placed under greater threat from insect infestation. Existing threats to flora and fauna can become exacerbated and regular shortages of water may increase competition between native fauna and livestock during drier times.

Large-scale tree dieback in the region is a historical occurrence, which bares intrinsic impacts for biodiversity and ecosystem health, as well as impacts on community values. Continued research into these diebacks in this region is essential to avoid or mitigate future occurrences under a changing climate.

As regional towns and cities grow in population, increased domestic water supplies will be required. Average temperature rises in the region are predicted to exacerbate the impacts of droughts and bushfires. In addition to changes in rainfall patterns, changes in rates of evaporation are expected in future, reducing the overall water availability and affecting water quality in some parts of Regional NSW.

Drought resilience in the region

The community of Armidale Region and Uralla Shire demonstrate resilience and strong levels of self-reliance that have been demonstrated in past drought events. These responses have been supported by targeted governance initiatives and ongoing efforts from community organisations delivering programs across the economic, environmental and social characteristics of the community.

While resilience is a key trait of the region and its people, it is important to define the factors of drought resilience to ensure that our planning and response strategies address all aspects of the system. It also supports identifying priorities to focus on in strengthening preparedness.

Drought resilience can be considered against three macro indicators, each with their own respective factors contributing to the broader system of resilience. Considering how this plan can address all these factors ensures we can address all aspects of the system.

Economic

Continuity
Employment
Diversity

Environmental

Infrastructure and built assets
Natural processes
Land management

Social

Personal wellbeing
Decision making capacity
Community wellbeing

A snapshot of vulnerability and resilience to drought

The Australian Bureau of Agricultural and Resource Economics and Sciences' (ABARES) has developed an index that ranks remote, rural, and regional agriculturally dependent communities (at the LGA level) according to their potential to be adversely affected by drought. The Community Vulnerability and Resilience to Drought Index (CVRDI) is the first stage of a comprehensive body of work with the indicators informing the index accounting for both agriculture industry exposure and sensitivity, and community sensitivity.

The result is a snapshot based on drought exposure and drought sensitivity at the farm level (farm sensitivity), the reliance on employment in agricultural production industries (community sensitivity), the adaptive capacity of an LGA to drought based on economic diversity, and a final combination of these indexes through the potential drought impact.

The data comprises variables and indicators which have been combined and ranked. Scores are not necessarily representative of the magnitude of impact, rather it positions the sensitivity with respect to other LGAs assessed. There is a strong link to employment in agricultural production, particularly for community sensitivity which may not be representative of broader community sensitivity detailed through this plan.

ABARES CVRDI scores — (based on data from ABS Census 2021) measured from 0 [lowest] to 1 [highest]				
LGA	Farm sensitivity	Community sensitivity	Economic diversity	Potential drought impact
Armidale Regional Council	0.33	0.17	0.66	0.34
Uralla Shire Council	0.52	0.24	0.54	0.51

The ABARES CVRDI scores indicate the following for the region:

- Lower to moderate farm-based exposure, which is linked to both exposure to climate variability and the effects this has on farm outcomes.
- A relatively lower level of community dependence on agriculture, supported by established strengths in other sectors.
- A moderate level of economic diversity, linked to strengths in education and training, and health care and social assistance.
- A low to moderate potential drought impact, particularly within Uralla Shire, due to both farm and community sensitivity ranking higher. This higher score for Uralla may be due to specific sensitivities from particular farm characteristics, but also indicates the higher level of economic diversity within Armidale due to its role as a regional city.

The region remains susceptible to future drought impacts due to its agricultural strengths, however the moderate levels of economic diversity demonstrate the adaptive capacity of the region. Levels of community connection and social capital, along with diversified economic development opportunities offer key opportunities to aid immediate and long-term drought resilience.

Connected communities and partnerships

While land management and infrastructure are important components to mitigate drought impacts, local community strengths are equally important for disaster preparedness. The Foundation for Rural Regional Renewal (FRRR) supports long term vitality of rural Australia and provides funding and capacity building support at the hyper-local level. The organisation has previously focused on this concept of connected communities and the associated capabilities of enduring future droughts. For the sustainability of agriculture-dependent communities in the longer-term, it is crucial to equipped to withstand pressures of dryer periods. This requires social connections and established support networks.

The resourcefulness of the Armidale Region and Uralla Shire communities is a key component of existing resilience and highlights the strength of social connections and support networks which have been called upon in previous events.

These networks promote a sense of belonging, support proactive mental health outcomes and recognise the need for local solutions. Previous programs under funding through the Future Drought Fund have identified that these connected communities show a higher sense of resilience and preparedness for the impacts of climate change (including drought) and increases in community understanding of drought and how both skills can support preparedness.

To address enduring future droughts, particularly within the context of interlinkages of other trends, it is essential to foster principles which rely on coordination and collaboration across local groups and organisations, and acting together.

Preparing communities for drought

Through the FRRR's Community Impact Program – Preparing Communities for Drought project, funding was provided to enable Southern New England Landcare (SNEL) to deliver a range of local events to share local knowledge on drought preparation activities and strengthen local networks. The program aims to increase the capacity of those in the community driving action on drought resilience.

The program, occurring outside of drought, demonstrates the focus of connected communities and utilising locally led champions within the community who maintain strong connections across. These connections are built through on-the ground connection and in this instance supported through the organisational capabilities of SNEL which demonstrates the value of partnerships in delivery. The current program is funded over two years, until June 2025.

A focus on land management practices - Southern New England Landcare

A range of organisations are supporting the uptake of regenerative farming and holistic management practices across the region. Broadly, the practice seeks to improve the resources it uses and encourages continual innovation. Southern New England Landcare plays a key role in implementation, leveraging the established connection to landholders with its broader partnerships in research such as that with the University of New England.

This includes delivery of the Resilient Pasture Landscapes program forming part of a 2-year free program to assist local farmers in managing productive and drought resilient pastures. The program included group learning sessions, training in online software, and freshwater quality monitoring of participants properties. Additional knowledge sharing and peer to peer group learning sessions operate across the seasons, to share information on approaches to evolving land management practices.

Beyond land management, Southern New England Landcare also actively delivers programs targeting drought resilience through community impact and supports the rollout of mental health first aid workshops in the region.

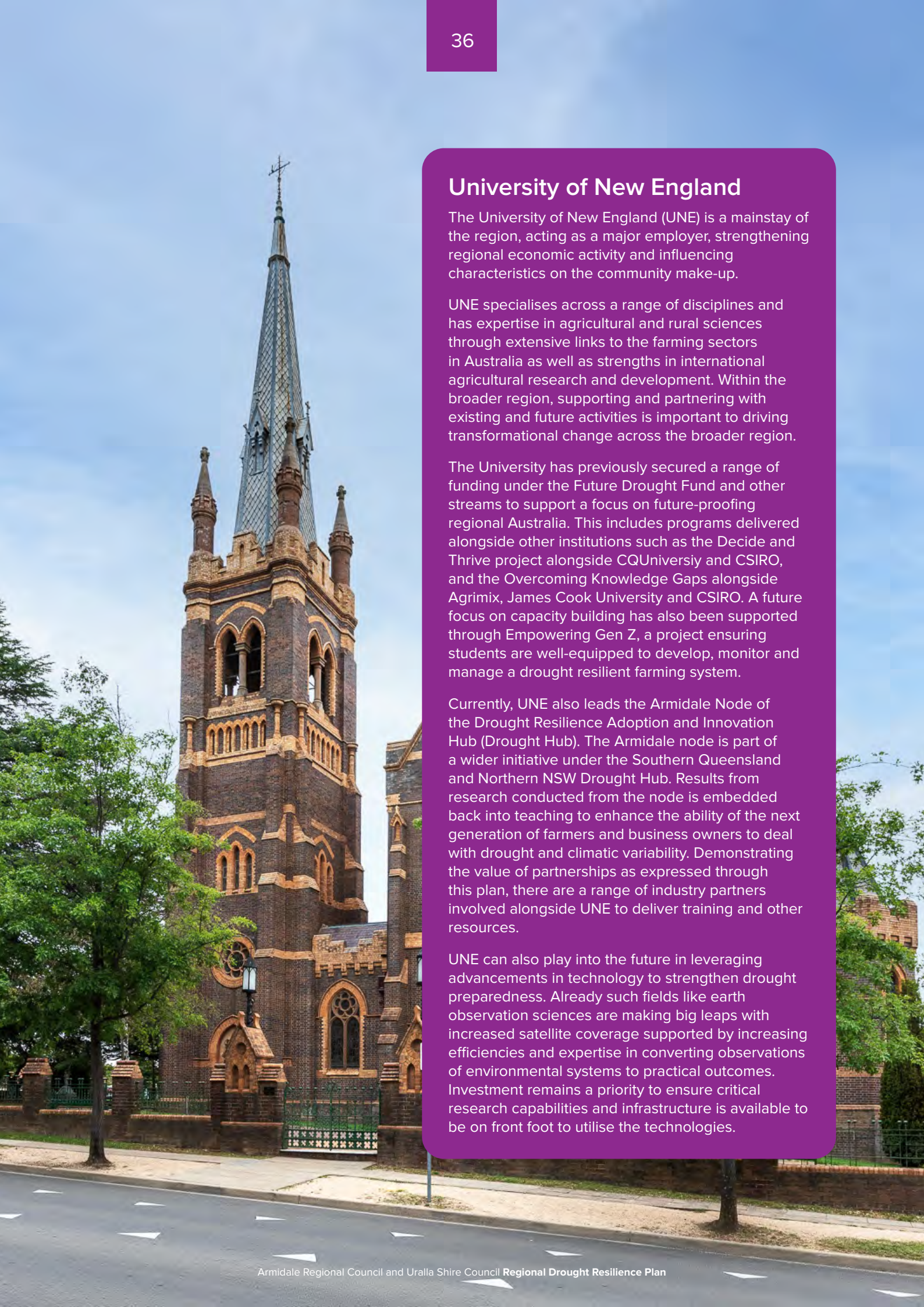
Sustainable Living Armidale

The region benefits from an engaged and educated community, reflective of its broader educational strengths in the economy. Sustainable Living Armidale is a volunteer organisation committed to raising awareness of the implications of climate change and depletion of natural resources, and building community networks focused on a more resilient and sustainable future.

The group organises events, workshops and discussions both to build connections within the community and support communication of messaging across members and interested parties. The groups also supported delivery of reporting outcomes from the Climate Emergency Working Group, established in 2020. Similar joint reporting has been undertaken alongside SNEL on per-urban dwellers and climate risk.. Again, a focus was on education and capacity building through a participatory workshop series to better understand impacts to peri-urban property owners.

While volunteer led, the group is active across a range of advocacy and communications front, presenting connections to engagement community members with local knowledge and local motivation for resilience.

Image - Photo by Michael Hull



University of New England

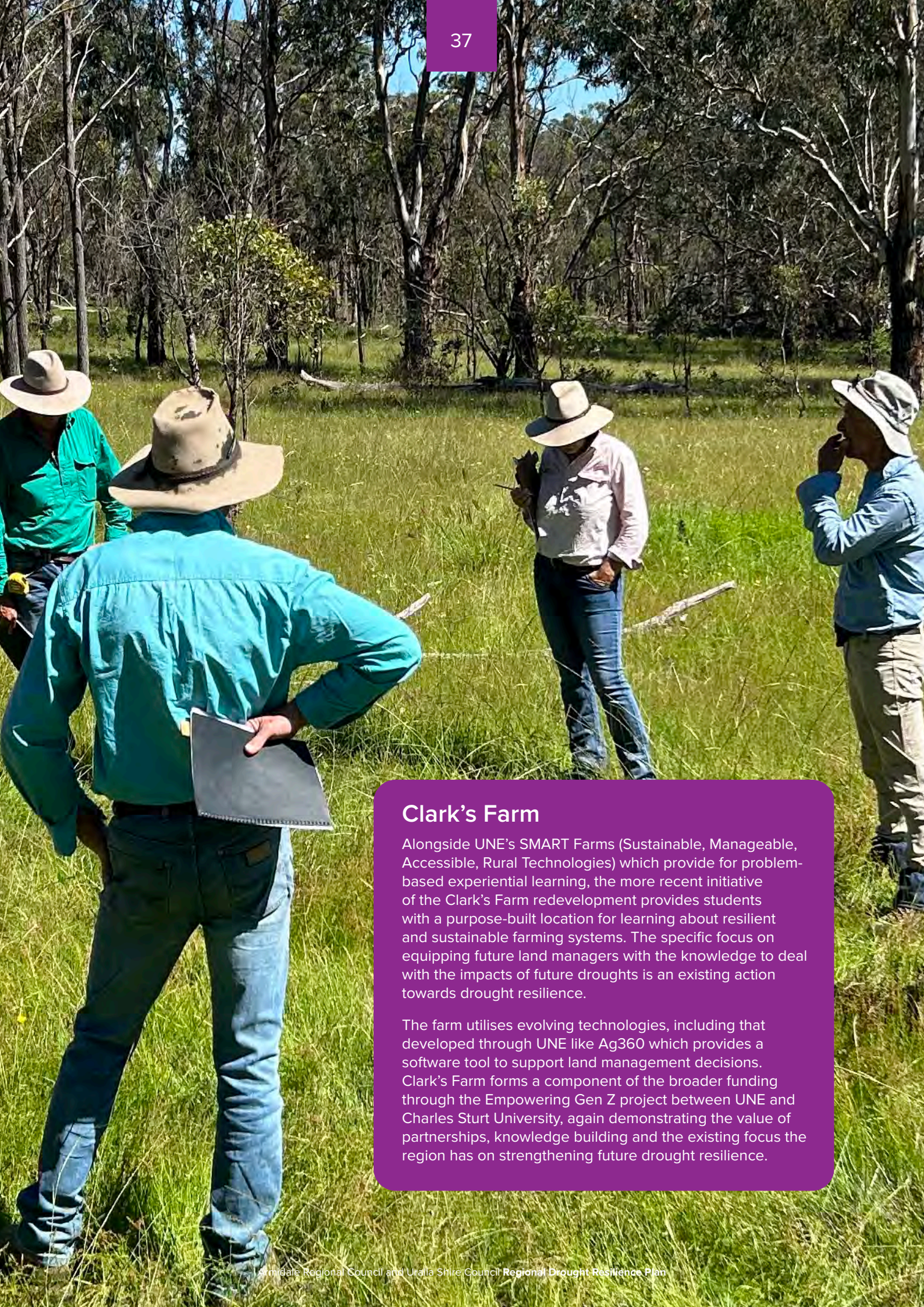
The University of New England (UNE) is a mainstay of the region, acting as a major employer, strengthening regional economic activity and influencing characteristics on the community make-up.

UNE specialises across a range of disciplines and has expertise in agricultural and rural sciences through extensive links to the farming sectors in Australia as well as strengths in international agricultural research and development. Within the broader region, supporting and partnering with existing and future activities is important to driving transformational change across the broader region.

The University has previously secured a range of funding under the Future Drought Fund and other streams to support a focus on future-proofing regional Australia. This includes programs delivered alongside other institutions such as the Decide and Thrive project alongside CQUniversiy and CSIRO, and the Overcoming Knowledge Gaps alongside Agrimix, James Cook University and CSIRO. A future focus on capacity building has also been supported through Empowering Gen Z, a project ensuring students are well-equipped to develop, monitor and manage a drought resilient farming system.

Currently, UNE also leads the Armidale Node of the Drought Resilience Adoption and Innovation Hub (Drought Hub). The Armidale node is part of a wider initiative under the Southern Queensland and Northern NSW Drought Hub. Results from research conducted from the node is embedded back into teaching to enhance the ability of the next generation of farmers and business owners to deal with drought and climatic variability. Demonstrating the value of partnerships as expressed through this plan, there are a range of industry partners involved alongside UNE to deliver training and other resources.

UNE can also play into the future in leveraging advancements in technology to strengthen drought preparedness. Already such fields like earth observation sciences are making big leaps with increased satellite coverage supported by increasing efficiencies and expertise in converting observations of environmental systems to practical outcomes. Investment remains a priority to ensure critical research capabilities and infrastructure is available to be on front foot to utilise the technologies.



Clark's Farm

Alongside UNE's SMART Farms (Sustainable, Manageable, Accessible, Rural Technologies) which provide for problem-based experiential learning, the more recent initiative of the Clark's Farm redevelopment provides students with a purpose-built location for learning about resilient and sustainable farming systems. The specific focus on equipping future land managers with the knowledge to deal with the impacts of future droughts is an existing action towards drought resilience.

The farm utilises evolving technologies, including that developed through UNE like Ag360 which provides a software tool to support land management decisions. Clark's Farm forms a component of the broader funding through the Empowering Gen Z project between UNE and Charles Sturt University, again demonstrating the value of partnerships, knowledge building and the existing focus the region has on strengthening future drought resilience.

Capacity building and engagement program

To enable effective implementation ongoing engagement remains a priority, the method of engagement moving forward may differ from that undertaken as part of plan preparation and instead, focus on refining the detail of selected actions under the plan, sequencing of actions and strengthening partnerships.

Continued and sustained local engagement across processes empowers more proactive actions towards drought resilience, aligning with the need for focus efforts to strengthen preparedness outside of drought.

To support implementation of the plan, future engagement has the following objectives:

- Build support and buy-in from key stakeholders to the ongoing efforts under the plan
- Provide ongoing inputs for PCG consideration in the implementation
- Ensuring implementation is appropriately informed by those working directly with community and industry
- Utilise knowledge, activities and program evolutions from the broader ecosystem of organisations focused on drought resilience initiatives
- Continue to capture views of often underrepresented groups in drought discussions, such as First Nations groups and non-agricultural community

Future engagement may focus on three key resilience components to allow for focused feedback and targeting of action areas. Broadly, these align with strategic pathways and priority areas presented under the drought resilience action plan.

Economic		Social and community		Environment	
Diversifying products	Incentivising new and ongoing business	Community connections	Linkages to services	Research	Connection to land holders
Business continuity and planning	Decision-making capacity	Mental health and wellbeing	Underrepresented groups	Knowledge sharing	Land management
Example programs and projects					
New England Renewable Energy Zone (Mix) – leveraging investment in legacy projects and diversifying economic development mix		Connecting to drought assistance and family support (New England Family Support Services)		The Clark's Farm redevelopment (UNE) - providing students with a purpose-built location for learning about resilient and sustainable farming systems.	

Figure 11 — Future engagement focus with example projects

Drought resilience action plan

The drought resilience action plan for the Armidale Region and Uralla Shire incorporates:

- Priorities for drought resilience across:
  - functional systems and sectors
  - levels of intervention
- Discernible and pragmatic actions that:
  - are drawn from science, research and local knowledge insights
  - provide the basis for anticipating, acting and advocating for drought resilience needs across contexts
- An architecture which supports different stakeholders to identify priority actions relevant to them.

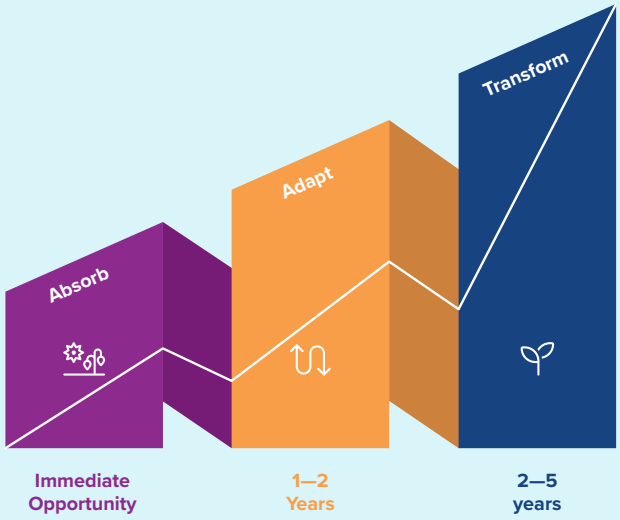


Figure 12 (right) — Resilience 'theory of change' intervention pathways and implementation

Many of the actions included were identified directly by stakeholders and community members as part of the engagement and consultation process to inform this plan.

A program logic approach was used to match the drought resilience needs identified by the engagement feedback with pragmatic actions. The actions ensure progression along the resilience 'theory of change' journey by focusing on absorbing impacts, adapting to impacts, or transforming to increase resilience to drought effects. More detailed information on this process is included in the separate Resilience Assessment document.

The 'theory of change' scale also helps us to understand the level of effort and the timeframes associated with each action. Implementation of actions across stakeholders is dependent on resourcing and funding availability. The plan is a ten-year plan to be reviewed after five years.

Assumptions and influences across the theory of change process

Shorter term

- Stakeholders and key partners have the capacity to participate in activities through the plan.
- Existing partnerships and focused engagement with underrepresented groups continues to ensure these aspects of the plan are developed.
- The PCG is broadened with active participants and is resourced to deliver on implementation activities and ongoing adaptive learning processes.
- Programming and project plans provide opportunity for stakeholders to identify emerging drought resilience needs or priorities.

Longer term

- Strategic planning for the region, and across LGAs aligns with the focus of this plan.
- There is continuity of funding to ensure partners and local capabilities remain active and connected to the project and can see demonstrated benefits from input of time.
- Ongoing review and lessons learned informs updates to the plan to ensure implementation meets practicalities. The foundational nature of this plan is built upon with a focus on transformational actions in future years.

Regional Drought Resilience Plan – Top 5 priority actions

1. Drought concierge liaison officer
2. Continue the delivery of the UNE Drought Resilient Pastures Landscape project / Drought Resilient Soils and Landscapes project / other programs which focuses on preparing drought and estimating and managing pasture during dry periods
3. Joint prepared drought communications strategy for Armidale Region and Uralla Shire
4. Mental health first aid training for Council staff and community organisations
5. Connect to Culture program with the Keeping Centre and educational program on Indigenous water management principles.

Drought resilience pathways and actions

This drought action plan establishes a framework to guide focus and efforts in response to priorities established through stakeholder and community engagement.

The action plan spans four strategic pathways, each of which interact with one another with respect to drought resilience for Armidale Region and Uralla Shire. These strategic pathways include:

Pathway 1
Economics

Pathway 2
Social and community

Pathway 3
Environmental connectivity

Pathway 4
Governance

These strategic pathways and their associated actions seek to provide implementable activities to drive toward enhanced drought resilience.

Image - Photo by Michael Hull

Pathway 1 – Economics

The Southern New England High Country Regional Economic Development Strategy (2023) highlights the four key economic drivers of the region to include agriculture, education and training, tourism and renewable energy. Given this existing and expanding economic diversity, there is benefit in a focus on the areas of:

- Collaboration and partnerships
- Sustainable enterprise investment
- Rural business planning
- Leveraging expanding economic diversification
- Support for local business
- Leveraging the region's existing strengths as an education hub.

Community consultation identified that ensuring continuity and expansion of existing partnerships with the University of New England and supporting programs is a central opportunity across different aspects including agricultural research, programs and projects. These benefit through building up local knowledge capabilities and leveraging local industry linkages, and are well positioned from an established focus on enhancing drought resilience.. Anticipated future climate impacts note the need to build on educational strengths to not only adapt practices on-farm, but drive towards transformational changes.

Stakeholders also identified growing education around innovative and sustainable agriculture practices to offer considerable long-term advantages both from economic and environmental perspectives.

Off-farm, the region boasts many economic development opportunities. Renewable energy and education and training are established and growing strengths. The emerging visitor economy is supported by boutique tourism offerings and artisan products. Activities under this pathway may seek to reinforce these strengths and navigate potential pressures placed on diverse sectors during drought.

Image - Photo by Michael Hull

DROUGHT RESILIENCE PRIORITY	SPECIFIC ACTIONS	STAKEHOLDERS INVOLVED	IMPLEMENTATION PATHWAYS	PLAN OUTCOMES
E1 **Harnessing collaboration**	E1.1 Utilise existing council community benefit policies from REZ projects in the region to maximise investment in legacy community opportunities that can aid drought relief and support the community during dry times. E1.2 Maximise cascading benefits and value-add industries from the region's location within the New England REZ. E1.3 Ensure renewable energy projects within the region encompass appropriate water management, quality and efficiency measures at the planning and design phase. E1.4 Ensure the water needs and efficiency measure of any workers accommodation activities is appropriately considered at planning and design phase. E1.5 Partner with industry to seek to attract renewable energy headquarters or regional offices to establish in the region. E1.6 Explore opportunities for energy cost subsidies from REZ activity in the region. E1.7 Support and expand First Nations economic enterprise within the region.	› Armidale Region and Uralla Shire Councils › Renewable energy industry › First Nations business operators › Industry and tourism › Chambers of Commerce	**Adapt –** through planning for changing economic drivers **Transform –** the long-term economic stability of the region through catalyst approaches	› O5 › O6
E2 **Sustainable enterprise investment**	E2.1 Investigate land use planning opportunities to incentivise ancillary on-farm income generation (e.g. ag-tourism, ecotourism, materials processing). E2.2 Collaborate to enhance implementation of regenerative agriculture practices on-farm, including financial subsidies to incentivise investment. E2.3 Invest in farm dam fencing on a rolling basis, including opportunities to reduce evaporation such as wind breaks and shade provision. E2.4 Explore heat and drought-adaptive herds and crops, taking into account the temperate climate of the New England region. E2.5 Continue to invest in Ag-tech for on-farm monitoring to inform decision-making. E2.6 Advocate for greater longitudinal indicator-based reporting by State government and other sectors to build locally-specific data sets regarding drought trends across social, economic and environmental sectors. E2.6 Invest in research and capabilities to support monitoring solutions for drought indicators and take advantage of new satellite availability and earth observation advancements. E2.7 Deliver business continuity planning workshops for town and village-based businesses to assist with pre-planning to proactively alleviate potential drought impacts.	› Landowners and associated stakeholders › Community and interest groups › Armidale Region and Uralla Shire Councils › Relevant government agencies › Locally represented universities, researchers, institutes, research facilities	**Absorb –** using priority actions to change business models for future readiness **Adapt –** through leveraging existing resources for different outcomes	› O6 › O7 › O8 › O10
E3 **Rural business planning**	E3.1 Increase take-up of on-property water monitoring including quality, storage volumes and overland flow. E3.2 Promote access to drought preparedness tools and resources to support business decision-making processes and trigger points. E3.3 Continue to invest in fodder and stock water storage options on-property. E3.4 Invest in succession planning processes for family-owned rural enterprises and landholdings. E3.5 Invest in whole-of-farm water management plans and drought plans which incorporate indicators and triggers for decision-making to inform business decisions when dry periods arise. E3.6 Investigate agistment networks and trigger points for transporting stock based on animal nutrition. This will assist in maintaining herds and genetics for enterprises which must maintain these assets and where considered feasible. E3.7 Advocate for support mechanisms for businesses directly impacted by agricultural downturn (who are not landowners) through drought such as contractors and farm staff.	› Landowners and associated stakeholders › Business owners and operators › Rural Financial Counselling Services › Relevant government agencies	**Absorb –** using priority actions to change business models for future readiness **Adapt –** through leveraging existing resources for different outcomes	› O6 › O7 › O10

DROUGHT RESILIENCE PRIORITY	SPECIFIC ACTIONS	STAKEHOLDERS INVOLVED	IMPLEMENTATION PATHWAYS	PLAN OUTCOMES
E4 **Economic diversification**	E4.1 Explore water recycling, broader waste recycling and circular economy opportunities to diversify industry and manage waste during drought periods. For example when more plastics may be used and discarded for water storage. Investigate a staged implementation approach. E4.2 Explore opportunities for renewable energy tourism. E4.3 Explore opportunities to expand Aboriginal cultural tourism opportunities in partnership with First Nation business operators. E4.4 Continue to grow the unique hospitality and tourism offering of both Armidale and Uralla, including as destination for boutique food and drink. Continue to develop and implement local tourism strategies. E4.5 Work towards implementation of the key strategies and enablers identified by the Southern New England High Country Regional Economic Development Strategy (2023). E4.6 Prepare a joint (or broader New England) regional investment prospectus to attract new business. E4.7 Invest in training programs to support accreditation of farmers and farm workers to enhance opportunities for supplementary work during drought periods and to build capacity (i.e. machinery accreditation, etc.).	› Armidale Region and Uralla Shire Councils › Business owners and operators › First Nations business operators › Industry and tourism › Chambers of Commerce	**Adapt –** through planning for changing economic drivers **Transform –** the long-term economic stability of the region through catalyst approaches	› O5 › O6 › O7 › O8
E5 **Supporting local business**	E5.1 Maintain existing ‘buy local’ schemes which support businesses across the districts. E5.2 Ensure assistance information (for example, how to stretch feed and carcass disposal) is available to support industry. E5.3 Work with town-based commercial landholders to introduce rainwater harvesting or smart water devices and water efficiency measures for existing commercial and industrial buildings. Councils to consider adding similar provisions for commercial and industrial development into Development Control Plans into the future.	› Armidale Region and Uralla Shire Councils › Business owners and operators › Industry and tourism › Chambers of Commerce	**Absorb –** using priority actions to change business models for future readiness **Adapt –** through leveraging existing resources for different outcomes	› O6 › O7 › O8
E6 **Leveraging the region’s strengths as an education hub**	E6.1 Support training and research opportunities with the University of New England including short courses in agribusiness and agricultural science. E6.2 Explore university partnerships in ag-tech and research to expand new ways to adapt to changing conditions. E6.3 Continue the delivery of the University of New England Drought Resilient Pasture Landscape project which focuses on preparing drought and estimating and managing pasture during dry periods E6.4 Leverage existing governance arrangements to foster expanded partnerships with University of New England across the areas of research, ag-tech and agri-business, facilities, projects and programs and student wellbeing. E6.5 Advocate for the continuity of funding for the Armidale Node of the Drought Resilience Adoption and Innovation Hub (Drought Hub). E6.6 Work synergistically to grow local renewable energy skills and training, as this industry represents a new source of employment in the region.	› University of New England › Locally represented universities, researchers, institutes, research facilities › Industry › Community interest groups	**Adapt –** through leveraging existing resources for different outcomes **Transform –** the long-term economic stability of the region through catalyst approaches	› O6 › O8 › O9 › 011 › O12

Pathway 2 – Social and community

Social and community impacts, particularly in relation to mental health and wellbeing is one of the most critical impacts stemming from drought. This was one of the clearest priorities identified by community through the plan engagement process, recognising that community connection, cohesion, participation and identity are already strong resilience attributes of the region that need to be maintained and fostered. This includes when the pressures of drought amplify differences between values and practices.

This pathway seeks to focus on strengthening social and community support programs to maintain strong networks to endure during drought periods. Having a plan in place to guide options, with flexibility to take advantage of emerging ideas and opportunities is key to support and guide investment when funding programs are released to support drought-affected communities during dry times. This minimises ad-hoc spending and maximises funding directed to locally identified needs.

There is a continued focus to ensure the needs of more vulnerable members of the community are supported through the plan and its implementation. A community engagement program to support implementation and broadening of the PCG also seeks to build in these feedback processes, recognising the need for ongoing communication to build trust. Key partner organisations also demonstrate reach across these more vulnerable groups of the community and are key stakeholder to support through the action plan.

To mitigate impacts of future drought on characteristics of social and community resilience, the plan has a focus on:

- Strengthening community wellbeing
- Investing in partnerships
- Building capability and continuous improvement
- A water-wise community.

DROUGHT RESILIENCE PRIORITY	SPECIFIC ACTIONS	STAKEHOLDERS INVOLVED	IMPLEMENTATION PATHWAYS	PLAN OUTCOMES
S1 **Strengthening community wellbeing**	S1.1 Establish or support delivery of mental health first aid training for staff and groups who are involved in drought assistance and relief. S1.2 Continue to invest in the delivery of community resilience programs which build capability and capacity to adapt to changing circumstances. S1.3 Continue to invest in community events and network opportunities for various cohorts before, during and after drought to strengthen relationships. Leverage these opportunities to increase awareness of local services that are available for support. S1.4 Support for agricultural networks including farm field days, small engine workshops, butcher days to share skills and knowledge and build networks. S1.5 Work collaboratively to understand the locally-specific decline in volunteerism and develop pathways to more flexible volunteer programs. S1.6 Increase programs and support for children and youth during drought, and a focus on personal resilience outside of drought periods. S1.7 Continue to advocate for greater mental health service support within the New England region. S1.8 Continue to support the work of local Community Neighbourhood Centres in Uralla Shire and Armidale Region. S1.9 Establish a 'living alone' register in Uralla Shire to ensure support reaches those who live alone. S1.10 Pre-plan for drought relief opportunities to support the agricultural sector including laundromats and shower facilities in towns. S1.11 Identify public assets which serve to bring people together during drought times and identify facility upgrades, additions and equipment needed. Leverage grant funding for such upgrades where available.	› Armidale Region and Uralla Shire Councils › Support services › Relevant government agencies › Not-for-profits › Community interest groups	**Absorb –** through recognition of existing strengths **Adapt –** through targeted strengthening of existing networks	› O1 › O2 › O3 › O4
S2 **Investing in partnerships**	S2.1 Invest in collaborative partnerships to coordinate local and regional mental health support options and distribute information during drought periods to aid access and referrals. S2.2 Establish communities of practice across the agricultural sector relative to different knowledge areas to boost local knowledge sharing and collaboration. S2.3 Continue to support the Armidale Aboriginal Cultural Centre and Keeping Place. S2.4 Work with local schools to bolster existing wellbeing programs and community outreach during drought.	› Armidale Region and Uralla Shire Councils › Support services › Relevant government agencies › Not-for-profits › Community interest groups › Schools and educational institutions	**Absorb –** through recognition of existing strengths **Adapt –** through targeted strengthening of existing networks	› O3 › O12
S3 **Building capability and continuous improvement**	S3.1 Focus on opportunities for inter-generational and family-based learning. Explore using this RDRP as part of school-based curriculum materials. S3.2 Ensure support networks are in place at organisational, industry and sector levels for those who providing a supporting role for others during drought (i.e. 'supporting the supporters'). S3.3 Implement campaigns which focus on water literacy to build capacity and capability to inform decision-making at all scales. S3.4 Ensure hobby farm-scale activities and landholders are supported as a 'missing middle' between town and agricultural activities of scale.	› Support services › Relevant government agencies › Not-for-profits › Community interest groups › Schools and educational institutions	**Absorb –** through recognition of existing strengths **Adapt –** through targeted strengthening of existing networks	› O2 › O4 › O13

DROUGHT RESILIENCE PRIORITY	SPECIFIC ACTIONS	STAKEHOLDERS INVOLVED	IMPLEMENTATION PATHWAYS	PLAN OUTCOMES
S4 **A water-wise community**	S4.1 Continue to invest in water saving devices across community, business and industry storage (e.g. rainwater tanks). Focus promotion before and during drought to contribute toward water saving and water restrictions. S4.2 Invest in water efficiencies, storage and smart devices to maintain ground cover on sporting fields and for priority open spaces to support community wellbeing. S4.3 Provide and display signage on properties where tank water is in use on gardens. S4.4 Uralla Shire Council to explore the provision of water collection points (mirroring that available in Armidale Region) where residents can pay a fee to access water for domestic and stock purposes. S4.5 Expand the consideration and incorporation of Indigenous knowledge in water management, including regard to the reverse triple bottom-line approach and care for the environment as a central element that underpins all other functions.	› Community members › Armidale Region and Uralla Shire Councils › Industry › Community interest groups › First Nations organisations and representatives	**Absorb –** through recognition of existing strengths **Adapt –** through improved processes and efficiencies	› O4 › O10 › O13 › O15

Image: Pallamallawa Hotel

Pathway 3 – Environmental connectivity

The health of the landscape and waterways supports almost every facet of our economic and community wellbeing, noting the role of water as a pre-requisite for life and survival. Community stakeholders noted the relevance of this principal throughout engagement.

Groundcover management, retaining soil moisture in the landscape and topsoil retention are clear drought impact reduction pursuits. These approaches assist to mitigate erosion, protect soil health, maintain pasture and prevent other events like dust storms. This plan has touched on the strengths of the region in adopting sustainable agricultural practices. However, through community engagement it was shared that this remains a spectrum, with potential uptake of a range of tools based on the outcomes sought from each land holder. The role of this plan is to support the existing knowledge sharing and the ability to implement practices.

Pest and weed management as well as restoration activities offer further opportunities to stem landscape degradation.

Local communities, and visitors alike, value the natural assets and landscapes of the Armidale Region and Uralla Shire, citing significant concern at previous vegetation diebacks in the area caused by drought in the 1970s and 1980s and again more recently as an impact of the 2017-2019 drought. Through consultation a sentiment shared was the feeling of the drought breaking and ‘finally looking up’ only to see the impacts the drought had on the valued vegetation.

To further bolster environmental connectivity opportunities relating to drought preparedness, the priority areas are:

- Community awareness
- Landscape restoration
- A focus on biosecurity
- Research.

Image - Photo by Michael Hull

DROUGHT RESILIENCE PRIORITY	SPECIFIC ACTIONS	STAKEHOLDERS INVOLVED	IMPLEMENTATION PATHWAYS	PLAN OUTCOMES
ENV1 **Community awareness**	ENV1.1 Create drought resilient gardens through the use of mulch and drought tolerant plants. ENV1.2 Support the adopt a tree program across each local government area. ENV1.3 Investigate installation of drought resilient plants and tree planting programs in public spaces which generate shade during drought times.	› Community members › Armidale Region and Uralla Shire Councils	**Absorb –** through previous experience to generate change **Adapt –** to enhance preparedness	› O2 › O4 › O10 › O13
ENV2 **Landscape restoration**	ENV2.1 Support the continued uptake of regenerative agriculture across all scales. Establish drought lots or smaller fenced paddocks to manage stock rotation and readily cater for de-stocking. ENV2.2 Expand existing landscape rehydration activities. ENV2.3 Support landscape reforestation measures as part of broader ecosystem health restoration as a result of die-back from drought, and aiding urban heat, in a fire-resilient manner. ENV2.4 Expand and continue to invest in riparian restoration projects. ENV2.5 Invest in water points for wildlife as a pilot in the region, which could include externally crowd funded options. ENV2.6 Implement groundcover management initiatives to reduce top soil loss, alleviate impacts of dust storms and flow-on health effects and heatwave mitigation, both on-farm and in communities.	› Landowners and associated stakeholders › Business owners and operators › Community interest groups › Relevant government agencies	**Adapt –** to enhance preparedness **Transform –** the longevity of landscape health during drought	› O9 › O10 › O11
ENV3 **A focus on biosecurity**	ENV3.1 Undertake a region-wide investigation on wash down bay needs to improve biosecurity (weed) management. ENV3.2 Prepare a picture book of weeds and weed seedbank to aid their identification and outline their relative treatment measures. ENV3.3 Work with New England Weeds Authority to implement its crown land project at Burial Ground Gully in Uralla Shire to eradicate weed infestation, adopting a collaborative approach include school-based project partnerships, as well as its '1000 casuarinas' project and continued weed management and replanting programs in Bundarra and across the region	› Community interest groups › Relevant government agencies	**Absorb –** through previous experience to generate change **Adapt –** to enhance preparedness	› O9 › O11 › O13 › O12
ENV4 **Build upon research**	ENV4.1 Invest in local and regional partnerships in areas such as soil moisture education, research, drought and water efficiency, regenerative agriculture, ag-tech, pasture management and budgeting, biosecurity and ecology and biodiversity. ENV4.2 Undertake groundwater and aquifer studies to better understand the characteristics of groundwater resources and connectedness with surface waters, noting the presence of relic groundwater in the area. ENV4.3 Participate in Local Land Service, and Drought Resilience and Innovation Hub tactical workshops.	› University of New England › Locally represented universities, researchers, institutes, research facilities › Industry › Community interest groups	**Adapt –** to enhance preparedness **Transform –** the longevity of landscape health during drought	› O12

Pathway 4 – Governance

Across all sectors within the region, sustained support for grass-roots drought resilience, capacity building and advocacy is needed. A range of actions exist which require coordinated effort. These actions provide a work plan for dedicated drought concierge position to assist specific elements of plan implementation, and to meet community and industry needs.

The engagement program that informed the development of this plan heard that a critical role of local government during drought is in increased and expanded communications and engagement across social, economic and environmental spheres.

Embedding drought resilience considerations across all aspects of Council's integrated planning and reporting (IP&R) framework sets in place the opportunity for focus of service delivery which has regard to the cyclical nature of dry and wet periods and bringing drought preparedness into business as usual activities of each Council.

To underpin existing governance approaches, there is benefit in advancing:

- Communications and engagement during drought
- Leveraging IP&R framework processes
- Continuous improvement in water management.

DROUGHT RESILIENCE PRIORITY	SPECIFIC ACTIONS	STAKEHOLDERS INVOLVED	IMPLEMENTATION PATHWAYS	PLAN OUTCOMES
G1 **Expanding communications and engagement during drought**	G1.1 Continue to utilise water management strategies as a vehicle to reduce the speed of consumption of water. G1.2 Invest in drought concierge liaison officer to connect people and business with relief and assistance opportunities. G1.3 Utilise the project control group to expand into a drought working group during dry periods to coordinate across sectors, and to share knowledge. G1.4 Increase local government community-focused communications on water-related matters, including a joint proactively prepared drought communications strategy. G1.5 Councils to invest in water restriction signage program across the region. G1.6 DPIRD to consider establishing a network of local governments in NSW that have run out of water in previous droughts to share knowledge and advancements and contribute to continuous improvement for other areas likely to face this issue into the future. G1.7 Issue more frequent Council newsletters and communication, and enhance engagement focus during drought, with important information and updates to all landholders during drought. Promote access to drought preparedness tools and resources to support business decision-making processes and trigger points.	› Armidale Region and Uralla Shire Councils › Relevant government agencies	**Absorb –** through previous experience to generate change	› O1 › O4 › O7 › O13 › O15
G2 **Leveraging IP&R framework processes**	G2.1 Ensure water availability and consumption, in conjunction with growth, is considered as part of major projects in the region including as part of future Local Planning Strategic Statements (LSPS) and Local Environmental Plans (LEPs) processes and other local government strategic activities. G2.2 Explore opportunities for recycled water usage on public and private properties and potential inclusion in DCP. G2.3 Councils and others to investigate water-saving device rebates	› Armidale Region and Uralla Shire Councils	**Absorb –** through previous experience to generate change **Adapt –** through improved processes and efficiencies	› O4 › O10 › O14 › O15
G3 **Supporting continuous improvement in water management**	G3.1 Re-examine triggers for water restrictions and measures continued in local water management strategies to take account of contemporary intelligence built since the last drought, and reflecting the capacity points of water storages where they become unusable for domestic water usage. G3.2 Consider suitable region-wide approaches to coordinate the transition into and between water restriction levels and aid in consistency of messaging to community (this may include the broader New England region where western LGAs are often the first to enter drought). G3.3 Increase transparency of water-related data, intelligence and decision-making for community benefit and to aid increased consideration of cumulative impacts. This action also forms part of the neighbouring Walcha and Tamworth RDRP, demonstrating potential opportunity for a whole-of-New England approach.	› Armidale Region and Uralla Shire Councils	**Absorb –** through previous experience to generate change **Adapt –** through improved processes and efficiencies	› O4 › O10 › O13 › O14 › O15

Implementation

The Armidale Regional Council and Uralla Shire Council Regional Drought Resilience Plan relies on collaborative implementation approaches.

The action plan for drought resilience spans different functions of government, and guides stakeholders with actions that can make a difference. This includes short, medium, and long term opportunities.

Governance structure

Implementation of the regional drought resilience plan is to be driven by a collaborative and multi-disciplined drought resilience project control group (PCG). Membership will be deliberately broad to provide an integrated and coordinated approach to drought resilience efforts.

Representatives from across community and industry will form part of the PCG. The composition of the PCG may evolve as the project matures. The evolution of the PCG forms a focus on ongoing stakeholder management, illustrated through the capacity building and ongoing engagement planned to occur.

The NSW Government's 'Drought Signals', BoM, Farming Forecaster or other tools / indicators should be contemplated in terms of drought or below average rainfall projections, to influence the PCG's direction with regard to implementation at any given point in time during the lifespan of this plan.

This will enable the PCG to adopt agile approaches and change priorities as needed depending on changing circumstances. Despite this, all actions remain relevant in terms of maximising funding opportunities. This status-based approach simply enables the PCG to consider those actions which will generate more immediate outcomes, when needed.

Both Councils will co-chair the PCG. PCG meetings should be held in different localities across the region over time.

ROLES DESCRIPTION
Advocate: An advocate actively supports a position, action or policy. The task is outside the advocate's jurisdiction, capacity or resourcing and advocacy is required to engage with those parties with capacity to deliver. For example, telecommunications advocacy.
Partner: A partner joins others in a common cause or action where roles and responsibilities are shared across areas of expertise. Each partner brings an element to the action for joint delivery. For example, region-wide strategic initiatives.
Lead: A lead is in control of an action. The action may still involve partners or other roles, but the action is reliant upon a lead party due to their technical or other expertise. For example, Health or counselling matters.
Owner: An owner is the only party that can undertake or permit the action. For example, local government as public asset owners.
Supporter: A supporter is united with others in the need or benefits of the action but potentially does not have a major role. The action is led or owned by others. For example, a supporter may provide assistance in kind, technical advice or donations to action leaders.
Stakeholder: A stakeholder is anyone who has an interest in the project, program or action. Stakeholders will have varying degrees of involvement from owner to advocate and all points between.
Deliverer: A deliverer is responsible for implementation and outcomes of an action or funded program. For example, community agency delivering social aid programs.
Funder: A funder provides the funding arrangements. The party is not involved with scoping, executing or delivering the program but may require some outcome reporting or evidence. For example, the government grant funding for a pest control program delivered by others.

A PCG Terms of Reference is to be prepared for its membership to guide its function. A Memorandum of Understanding may also be required. The terms of reference may include:

- Role and purpose and connection to the RDRP, including a focus on approaches to facilitating structured learning processes
- Stakeholder and membership lists
- Meeting arrangements, (potentially quarterly) and responsibilities of attendees
- The circumstances of a quorum and decision-making protocols
- The election or rotation of a chair person
- An action plan for the first 60 days or 12 months including delivery of the priority actions with the implementation funding; and
- A process for reflection and nominating next priority actions. This includes consideration of how stakeholders across and beyond the PCG play a role in determining the priority actions. This may align with existing consultation and strategic planning work.

Monitoring, evaluation and learning framework

Whilst the drought action plan incorporates a large suite of projects, activities and actions, some offer immediate opportunity, some are medium-term items and others are longer-term transformational opportunities. Not all actions can be focused on or delivered at once. The suite of actions identified shall guide the PCG in terms of its implementation and coordination of activities and funding pursuits, will enable a flexible and agile approach as drought conditions change, guiding the focus. This system will:

- Provide regular opportunities to define when conditions are changing locally
- Catalyse a change in focus to respond to the needs of the changing conditions.

This ensures a level of agility is adopted with regard to the implementation approach.

In addition to PCG implementation, it is critical to note the role of the broader community groups and industry organisations which may also utilise this plan to seek funding from a variety of different funding bodies. This plan enables stakeholders to work towards and contribute to regional drought resilience outcomes, including those at the local and property level, using this plan as an evidence base.

The drought resilience action plan also requires that a 'lessons learned' culture is adopted, ensuring new information, knowledge, approaches and science is rolled into implementation delivery as a guiding principle. This will mean that over time the drought resilience action plan may be adapted to reflect new learnings, and the adjustment of intervention pathways as required. The PCG is responsible to conduct an annual lessons learned review with changes to inform action moving forward. This forms one component of broader structured learning processes which should feature as part of the plan and as partnerships evolve.

The drought resilience action plan has been thoughtfully designed to not only guide collective effort and action but to enable adaptation through ongoing monitoring, evaluation and learning. The regional drought resilience plan is a ten-year plan, to be reviewed after five years. An annual monitoring program to inform adaptive learning is outlined below. Addendums to this plan can be made, to reflect these learnings over time and ensure the document maintains pace with changing circumstances and maturation of drought preparedness activities.

Tracking progress and reporting

Action-based project tracking against the drought resilience action plan, the principles and objectives of the plan should be undertaken on an annual basis. This tracking and reporting shall be the responsibility of the implementation PCG chair, unless otherwise delegated.

Likewise, an annual evaluation process will be conducted by the PCG, guided by the evaluation questions that follow.

Key evaluation and learning questions

These key evaluation questions are high level questions designed to frame the analysis of progress and performance of the Armidale Regional Council and Uralla Shire Council Regional Drought Resilience Plan against the above framework. These key evaluation questions may help to structure annual tracking and reporting.

Effectiveness and outcomes:

- What have been the outcomes (intended, unintended, positive and negative) of the plan implementation process and progress?
- To what extent has progress contributed to or furthered the principles and objectives of the regional drought resilience plan?

- Has the plan been used for or otherwise supported successful funding and grant applications?
- Have any barriers or challenges been identified throughout the implementation of plan, and what solutions to address these have been identified?

Drought resilience maturation:

To what extent has efforts in implementing the plan contributed to:

- Creating stronger connectedness and greater social capital within our communities, contributing to well-being and security?
- Empowering our communities and businesses to implement activities that improve their resilience to drought?
- Supporting more primary producers and land managers to adopt whole-of-system approaches to natural resource management to improve the natural resource base, for long-term productivity and landscape health?

Ongoing stakeholder engagement:

- In what ways are the PCG and other stakeholders collaborating and collectively contributing to efforts outlined by the action plan?
- In what ways has the plan provided inclusive involvement across sectors, disciplines and communities?
- In what ways has the plan been able to support individual stakeholder goals, objectives and aspirations with regard to drought resilience?

The reporting may be undertaken using a range of tools to capture experiences and perspectives from across the PCG, allied stakeholders as well as the communities of the Armidale Region and Uralla Shire more broadly. These tools may include:

- Meetings and event data capture
- Targeted meeting / interviews with stakeholders
- Survey data
- Case studies and data from the PCG
- Media, including social media
- Funding and grant applications.

The above capture of information may be used to inform checkpoint as to whether priority focus areas are changing and whether action linked in the theory of change require review where greater action is needed, or transformational focus is prioritised.

Achieving the plan's outcomes

A further opportunity for the PCG to measure the contribution to or achievement of the plan's outcomes is by using local data to assess specific outcomes. The data sources / indicators will need to be selected by the PCG and can provide insights as to how the plan is tracking against the resilience theory of change. Outcomes include:

THEME	OUTCOME	
Social and community	O1	Community connection and wellbeing is maintained
	O2	Capacity and capability of community groups and organisations is strengthened
	O3	Mental health services are available and are accessible across the community
	O4	Sustainable water management practices are routinely being used
Economic	O5	Further diversification of the local economy is achieved
	O6	Cross-industry and cross-sector partnerships are leveraged to invest in innovative agri-business solutions and sustainable practices to prepare for drought
	O7	Local enterprise resilience to economic disruption is strengthened
	O8	Value-add industries are expanded
Environment	O9	Environmental degradation of landscapes and waterways is reduced through investment in landscape rehydration, re-forestation, riparian restoration and groundcover management
	O10	Innovative projects for water efficiency are delivered
	O11	Biosecurity outcomes are made easier to achieve through tools that grow capacity of individuals, businesses and organisations
	O12	Regionally-specific research is being leveraged through landholder and community organisation projects
Governance	O13	Communications and engagement action is increased during drought periods
	O14	Drought resilience priorities are embedded across Council's Integrated Planning and Reporting Framework and informs the plans, strategies and efforts of allied stakeholders
	O15	Transparency of information and knowledge regarding water use is available

Learning

Regular (annual) monitoring provides the ability for reflection and learning. The progress tracking and reporting methodology, using key evaluation questions, will present specific insights in terms of those opportunities to build in 'lessons learned' through engagement across stakeholders with a role in drought resilience.

These lessons should, on an annual basis, be contemplated with regard to the drought action plan to determine any relevant updates, new insights, intelligence and technologies that can be integrated to ensure the action plan keeps pace with a growing drought resilience maturation across systems and sectors.

This process will ensure the action plan remains a 'living document' that appropriately supports and services the needs of all stakeholders and importantly, the communities of the Armidale Region and Uralla Shire, in preparation for, endurance of, and recovery from drought.

Concepts to guide adaptive learning as part of plan implementation are included at Appendix B. These items will help navigate maturation of this plan over time.

Appendix A — Drought history

Precipitation and root zone soil moisture are considered as indicators of drought according to the Bureau of Meteorology's Australian Water Resources Assessment Landscape (AWRA-L) service. Root zone soil moisture is a calculation of the upper and lower soil layers in the AWRA-L, which represents the water-holding capacity of the top one metre of soil. Root zone soil moisture and precipitation rates are each useful indicators of future drought potential.

Past records for the region demonstrate a year-to-year fluctuation in precipitation and soil moisture across the region. The late 1980s and 2010-2011 feature significant rain, whereas, 1944, 1982, 2006 are some of the periods of unusual dryness, with the most recent events of, 2017-2019 displaying distinct drying, particularly for soil moisture.

In all cases these drought events were characterised by protracted periods of low rainfall, leading to low soil moisture as illustrated below.

**Note that the data does not go back to the Federation drought of 1890-1902*

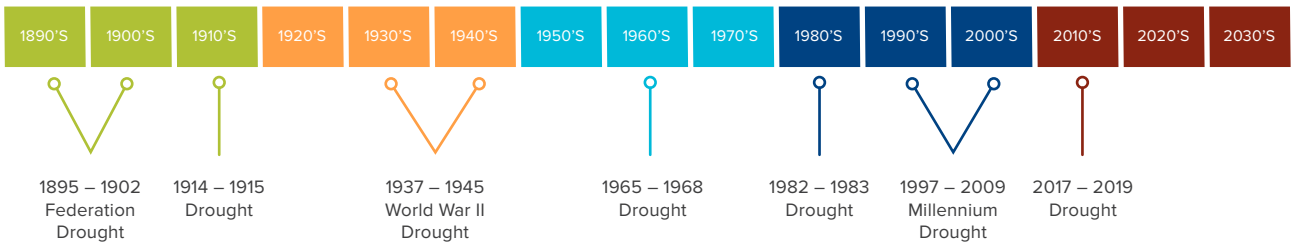


Figure 13 — Australian drought history timeline

In the below figures, these historic droughts are considered against a present-day baseline of 2002 to 2022.

1914 to 1915

Nationally, this drought was short but notable, primarily due to the failure of national wheat crop. It was driven strongly by an El Niño, with drought conditions first becoming evident in 1914. However, unlike surrounding regions and despite only being considered a year-long per the Bureau of Meteorology's reporting, data suggests that the drought period in Armidale and Uralla tailed into the 1920s. Periods of reprieve came in 1916-1917 and 1920-21.

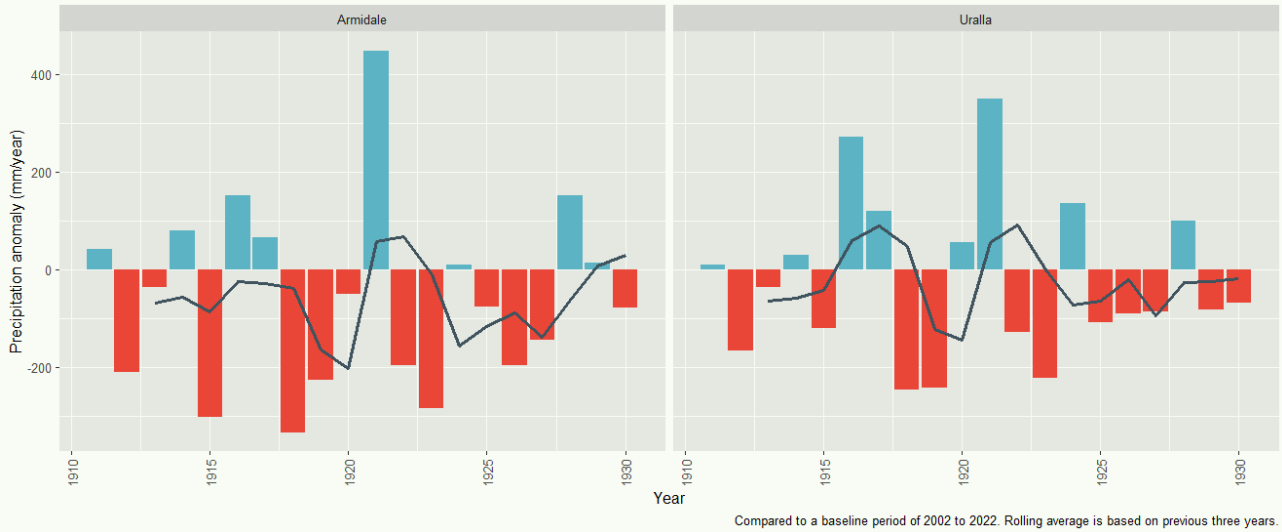


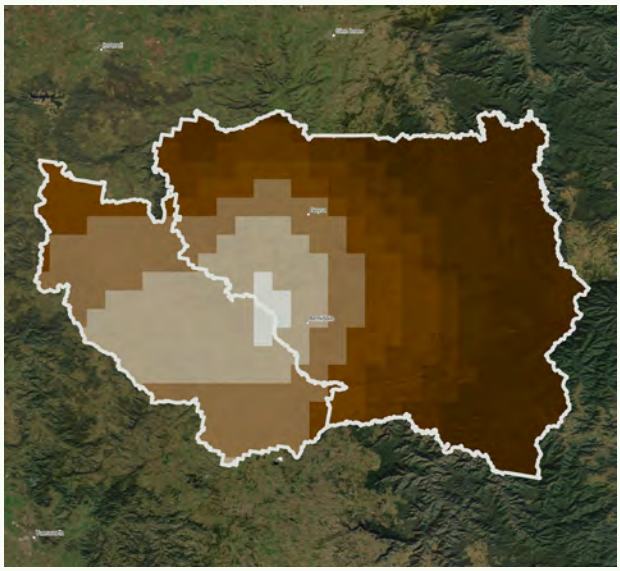
Figure 14 — Yearly precipitation (compared to baseline), by LGA (1910 to 1930)

In the New England region, by March 1915, the drought had caused anxiety amongst residents and reports of the grass being so dry along railway lines that sparks from passing steam engines were setting it alight. In November 1915, it was reported that the whole of the New England region was drought affected, whilst some rains were reported in early-Spring they were not sufficient to break the drought. Reports indicate entire potato crops being lost, other crops being spoiled by frosts and pastures being burnt off due to bushfires.

The breaking of the drought came in the New England region in early-December 1915, which was met with much relief from locals, with grave fears mounting for remaining stock in the region's welfare.

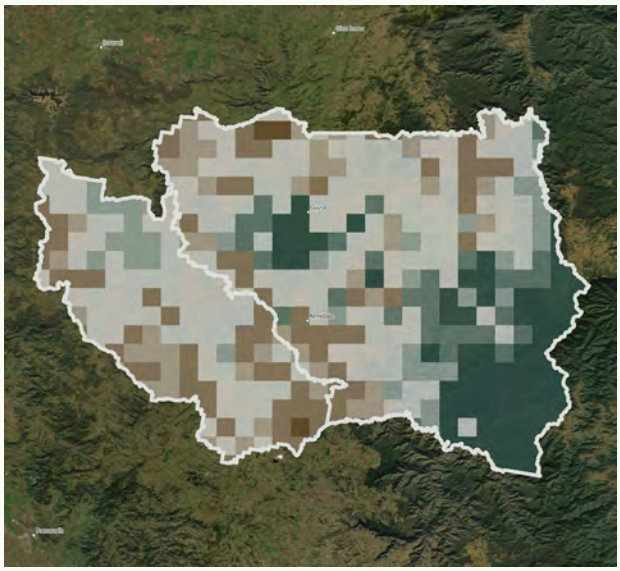
It is also of note that different areas of the region experienced different conditions. As shown below, the root soil moisture levels are significantly higher in the south and east regions of Armidale than Uralla Shire. This is potentially linked to the density of National parks and state forests that accompany these areas.

Precipitation (mm)



Precipitation, change during drought period (mm)

Soil moisture (mm/yr)



Historical change, root zone soil moisture (mm/year)

1937 to 1945 (World War II drought)

This drought period was characterised by several fluctuations of intensity and only some small periods of relief for Uralla (1941-1943) through otherwise significant periods of dryness. Although the World War II drought is dated 1937 to 1945, the data shows that this region suffered from as early as 1935.

From 1935 to 1944, the Armidale Region saw its most notable drought period to date. The region suffered little to no rainfall for consecutive years and intense periods of drought in 1935 and 1940.

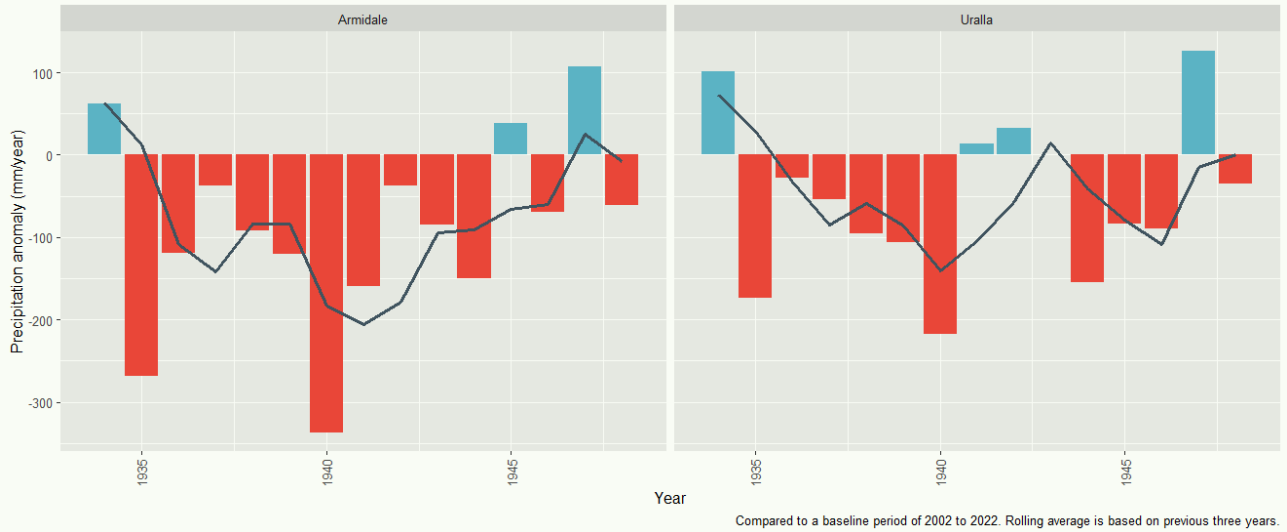
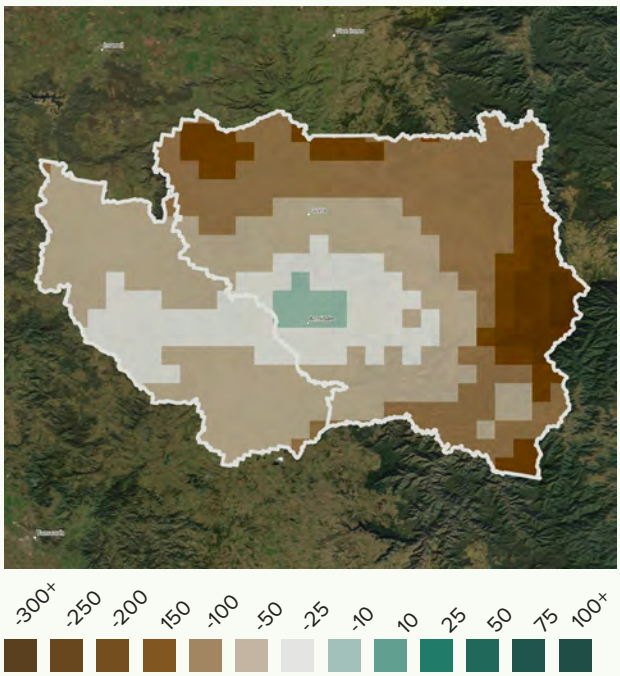


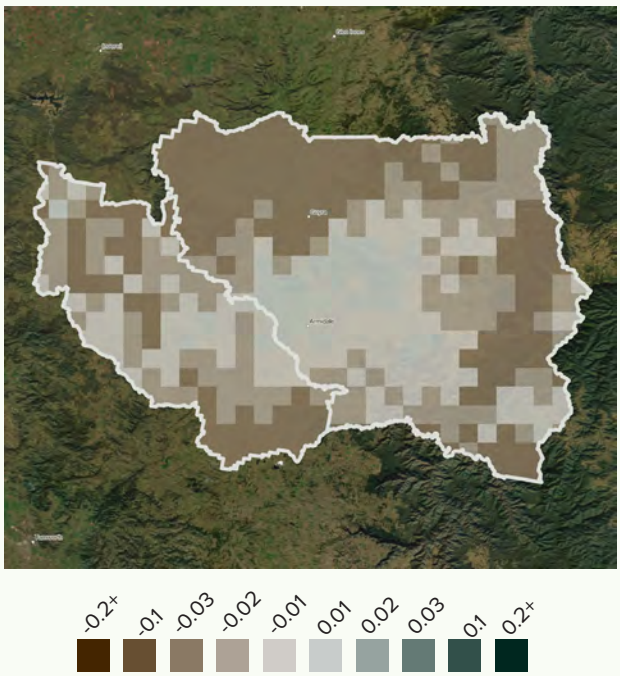
Figure 15 — Yearly precipitation (compared to baseline), by LGA (1934 to 1948)

Precipitation (mm)



Precipitation, change during drought period (mm)

Soil moisture (mm/yr)



Historical change, root zone soil moisture (mm/year)

1965 to 1968

The 1960s were generally dry across the continent. Drought developed in 1964 in northern New South Wales and had extended across most of the country by the following year. This was evident across the region, with lower rainfall and lower soil moisture across both council areas, with the northwest of each region seeing the most severe affects.

As shown in the data below, 1965 was the harshest drought year of this period. Both Armidale Region and Uralla Shire saw extremely low rainfall levels. Although the drought intensity saw little relief in the preceding two years, rainfall levels did not increase and stayed extremely low.

In the New England Region, it was reported that in the leadup to the 1965 drought there was a significant increase in sheep numbers between 1960 and 1964. Much of the pasture being established by aerial application of seed and fertiliser (leading to a clover dominance, which do not handle drought conditions). Many farmers had relied on sown crops to feed their stock, but when these had failed it resulted on stockfeed shortages.

It was reported that the drought was unique in NSW in that it arrived suddenly with several productive excellent agricultural seasons in the years priors. Due to the drought, millions of sheep and hundreds of thousands of cattle had reportedly perished causing significant impact to famers.

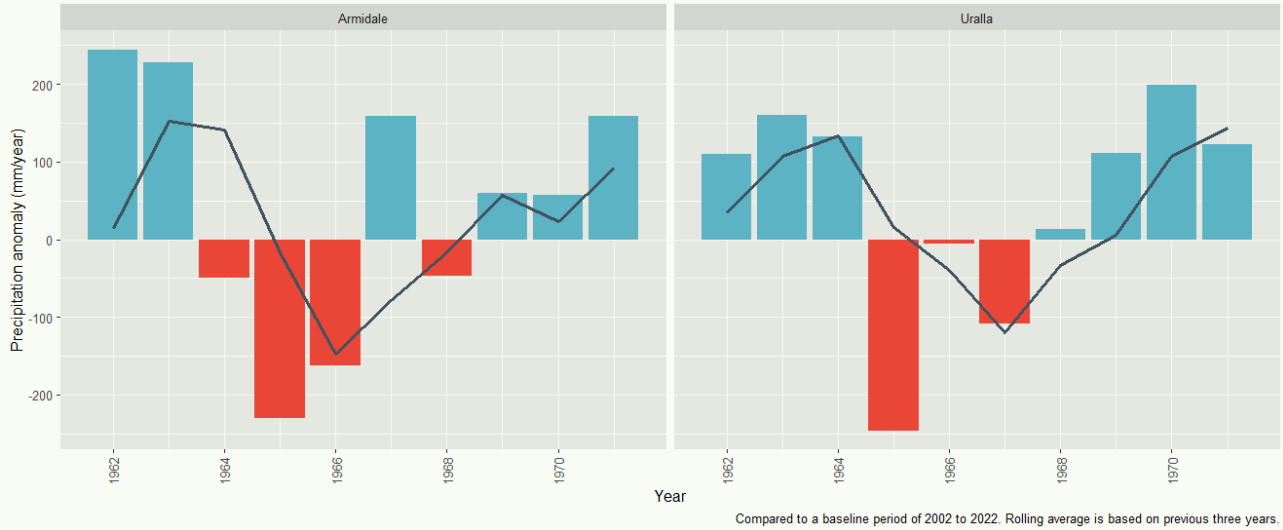
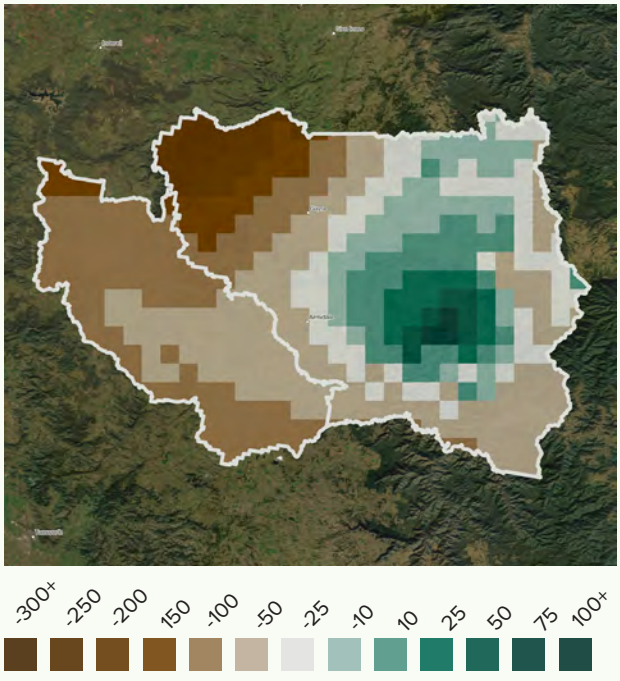


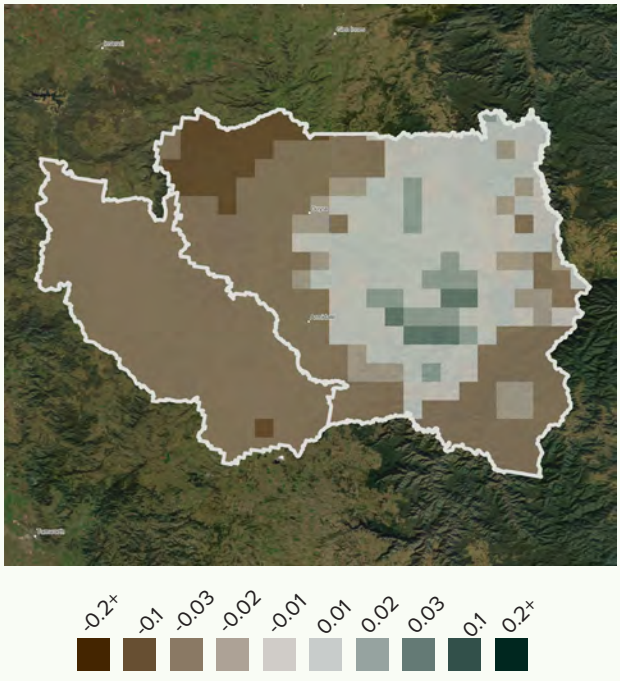
Figure 16 — Yearly precipitation (compared to baseline), by LGA (1962 to 1971)

Precipitation (mm)



Precipitation, change during drought period (mm)

Soil moisture (mm/yr)



Historical change, root zone soil moisture (mm/year)

1982 to 1983

Despite only being recorded by the Bureau of Meteorology as a year-long and only affecting some regions for a year, the data shows that this was a 4-year drought period for the Armidale and Uralla region. This period became one of Australia's most severe droughts in the 20th century and was caused by a very strong El Niño. Both Council areas experienced the most intense phase in 1980, two years before the recorded timeframe.

Around NSW, the impact of the drought was felt most in farming areas with massive crop and livestock losses.

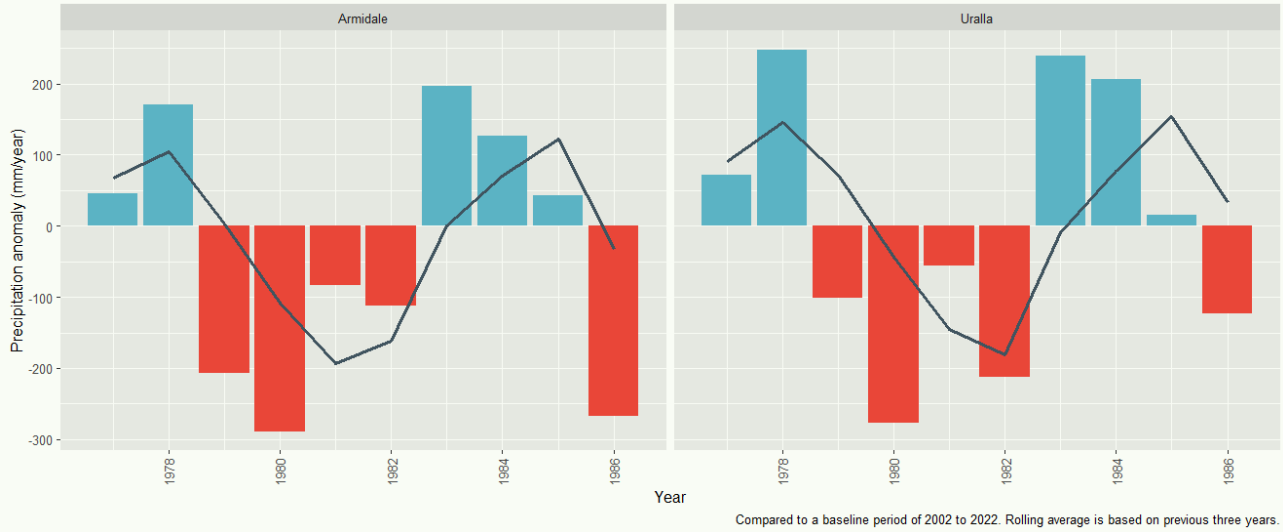
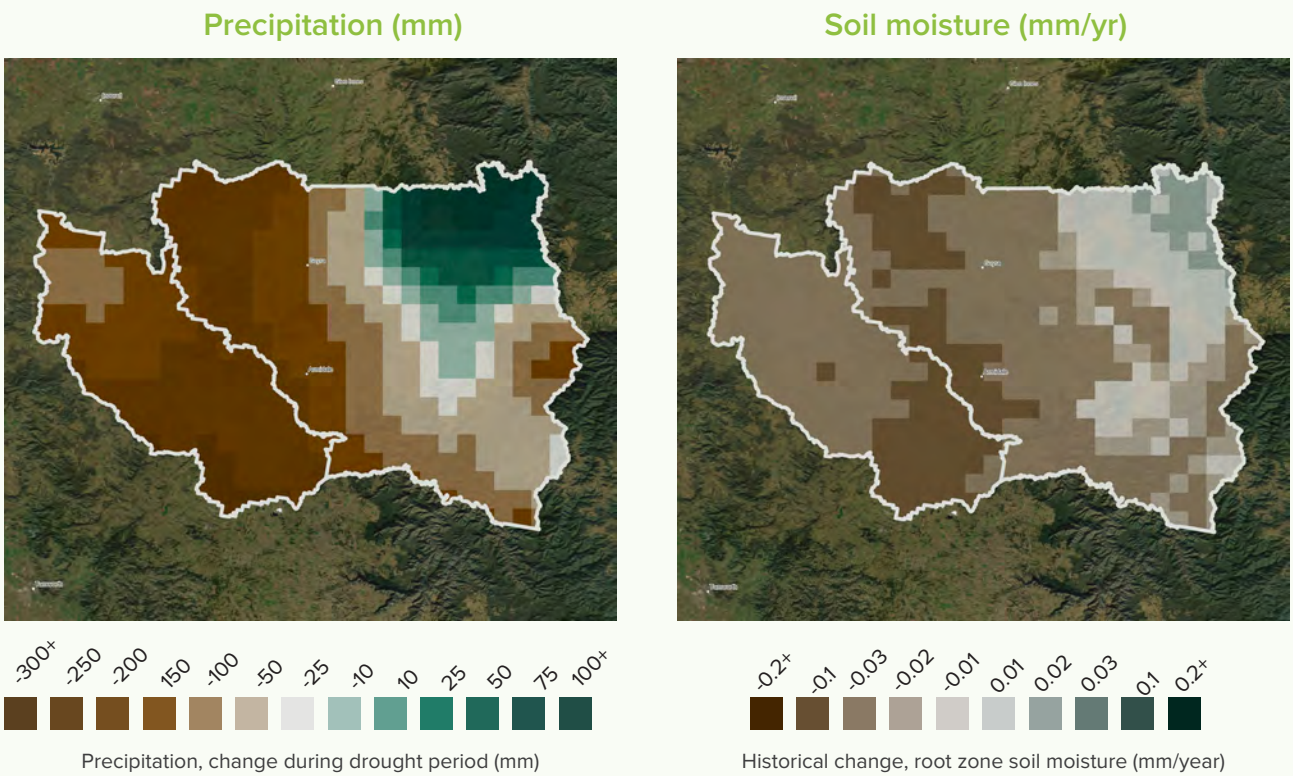


Figure 17 — Yearly precipitation (compared to baseline), by LGA (1977 to 1986)



1997 to 2009 (Millennium drought)

The Millenium drought was a long-lasting period of dryness, most severe in densely populated areas of the south-east and south-west of the country. As for Armidale and Uralla, this region saw an intense drought period in 1994, three years prior to the recorded start date. However, the region then saw relief and periods of fluctuating rainfall from 1996-2001. 2002 was the most severe dry period for both areas, with little to no rainfall tailing into 2003. 2004 onwards saw more fluctuating periods of rainfall and less intense drought conditions.

The Murray–Darling Basin and virtually all the southern cropping zones were severely affected.

Editor's note: The maps for this period show significant rainfall and higher soil moisture over this period, despite it being identified as a drought. This discrepancy is likely due to the reference period used to produce these maps (2002 – 2022) and that there was significant dryness in the latter half of that period. This result is then compounded by the short-lasting periods of rainfall decline during this long drought period (1997 – 2009). Therefore, leading to the appearance of increased rainfall and soil moisture compared to the reference period.

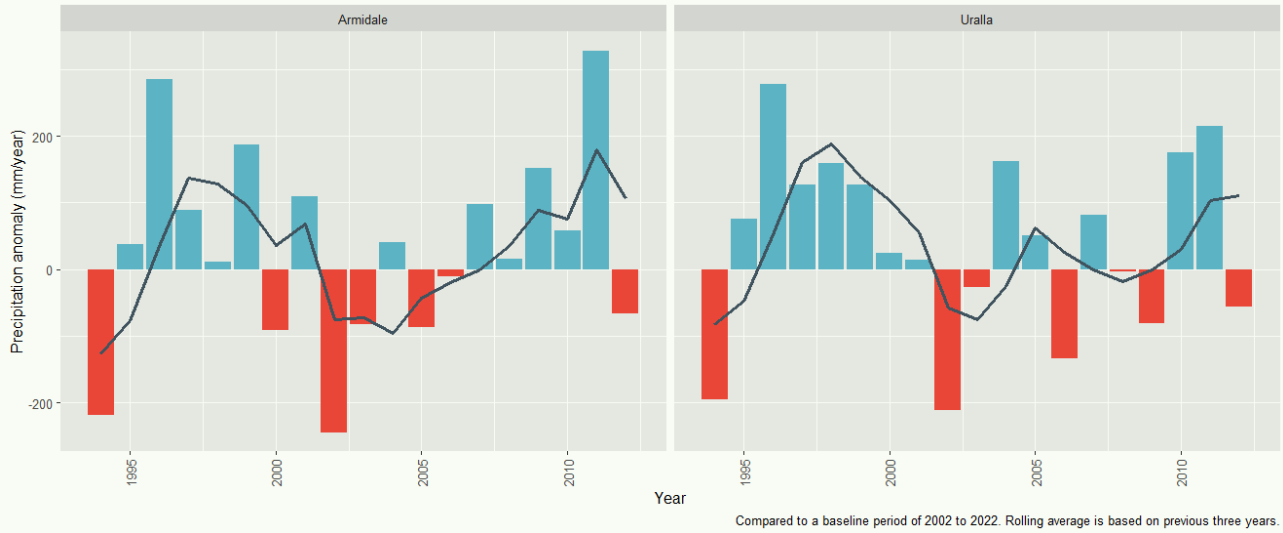
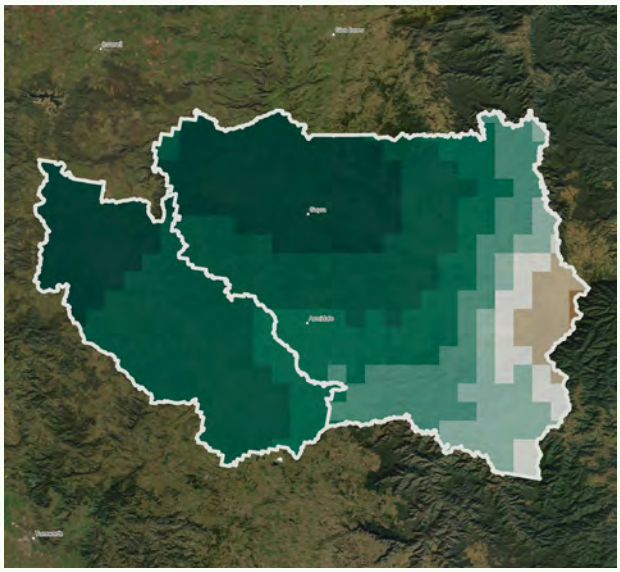


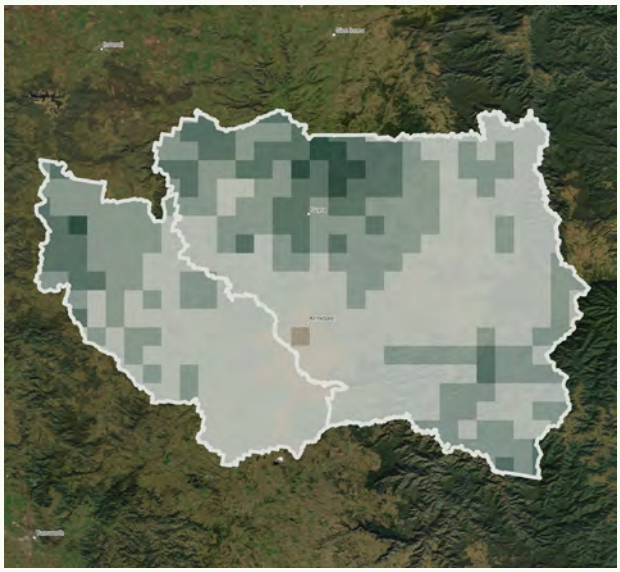
Figure 18 — Yearly precipitation (compared to baseline), by LGA (1977 to 1986)

Precipitation (mm)



Precipitation, change during drought period (mm)

Soil moisture (mm/yr)



Historical change, root zone soil moisture (mm/year)

2017 to 2019

Similar to other drought periods, the 2017-2019 drought started earlier for Armidale Region and Uralla Shire. The data below indicates that conditions for drought began to emerge in 2014 and peaked in 2019 before being relieved by La Niña conditions. There was a small window of relief in 2017 for Armidale and 2017-2018 for Uralla, where the regions saw a reduction in drought conditions and some, though notably small, periods of rainfall. Much like other regions, the year of 2019 was the most intense dry period. The 2019/2020 bushfire season was a significant contributor to these dry conditions, as well as widespread low rainfall and low soil moisture.

As outlined in the main body of this plan, the drought led to significant water security issues across the region requiring emergency water infrastructure programs to be delivered.

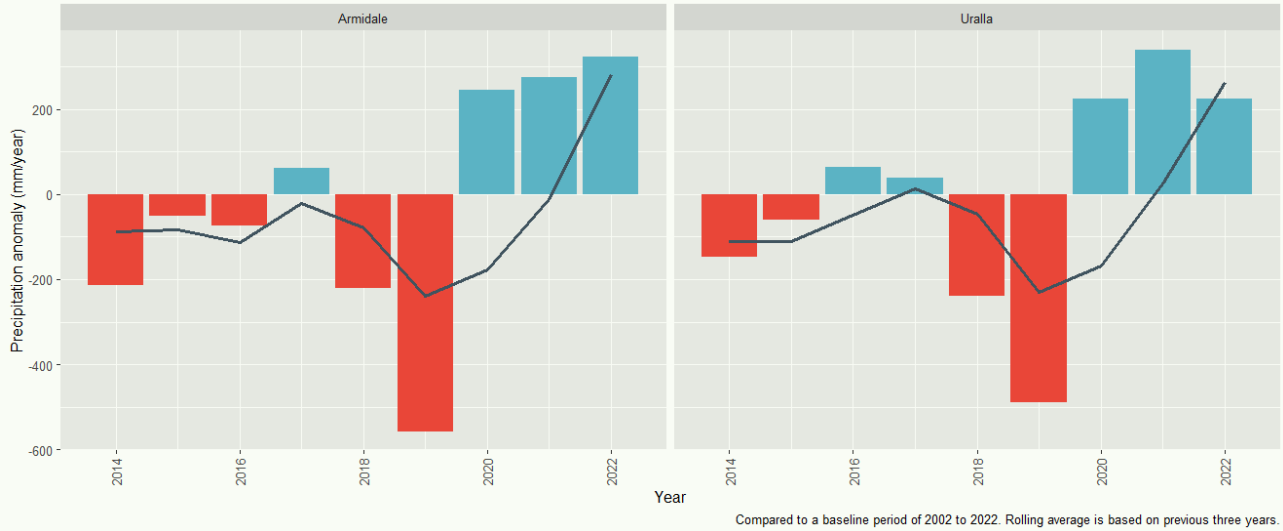
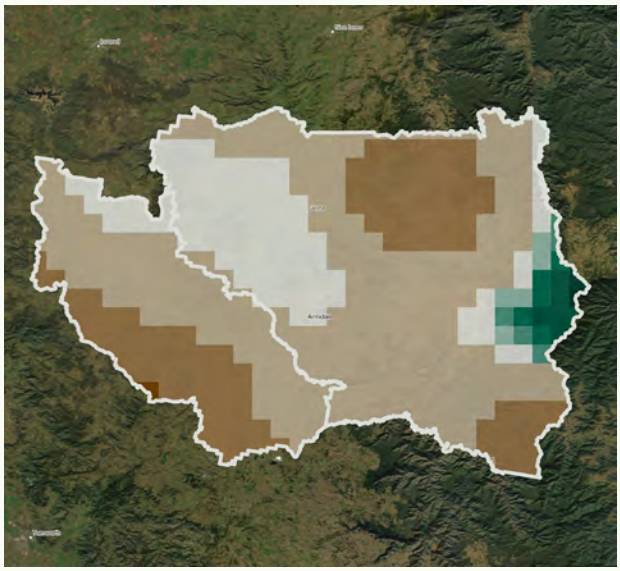


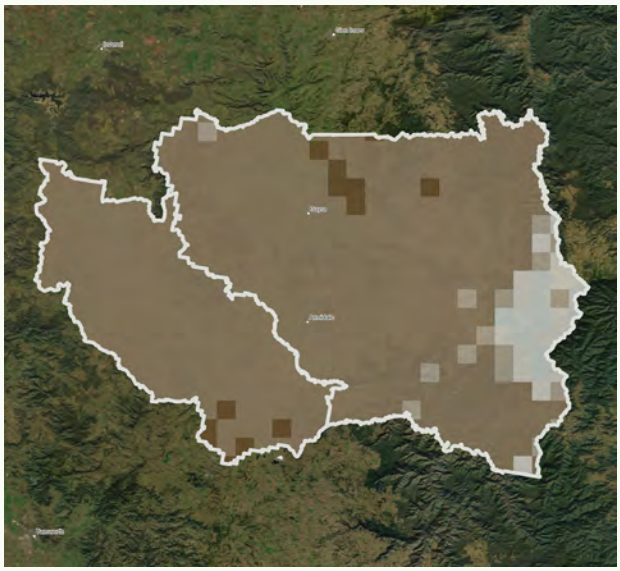
Figure 19 — Yearly precipitation (compared to baseline), by LGA (2014 to 2022)

Precipitation (mm)



Precipitation, change during drought period (mm)

Soil moisture (mm/yr)



Historical change, root zone soil moisture (mm/year)

Appendix B — Concepts to guide adaptive learning

As part of learning processes through the implementation, this appendix provides key considerations to guide further iterations and amendments to this RDRP. As drought resilience processes mature, the ability for further robust adaptation pathways to be implemented will emerge.

The table below captures specific items identified for integration as part of future plan iterations.

NO.	ASPECT OF CONSIDERATION
	Expansion of drought resilience relative to diverse stakeholder groups
1	Future plan updates could build on the work of establishing partnerships to further build in perspectives from different community segments that would allow exploration of cause-and-effect relationships. This would allow the plan to address feedback loops understood through the plan and already a focus of a range of organisations. This may also support co-design approaches to generate and incorporate additional innovative intervention options to address future drought scenarios.
2	Future plan updates should continue to seek engagement across the community, and build in and on top of existing processes to engage with less represented groups through implementation of the plan (including non-agricultural sectors and First Nations groups). Stakeholder engagement could be expanded to include direct participation of different drought vulnerable groups including gauging their capacity to participate and how best to engage with these groups moving forward. This information could be used to better target vulnerable residents and ensure adequate supports are in place to involve different community segments.
3	Expand on the interrelationships between economic, social and environmental factors across existing and updated documents, plans and strategies, and their implications for understanding and contributing to the region's resilience. There could be opportunity to link actions within the plan to these interrelationships to demonstrate multiple benefits from singular actions.
	Expansion of resilience adaptation pathways
4	Further develop the theory of change to aligns the plan's objectives and actions towards reaching its intended outcomes, including the degree to which the proposed actions contribute to adaptive and transformative actions. Subsequent plans may focus on opportunities that address adaption and transformation.
5	Expand on the interrelationships between economic, social and environmental factors across existing and updated documents, plans and strategies, and describe how these relationships influence potential cascading impacts of drought. There could be opportunity to link actions within the plan to these interrelationships to demonstrate multiple benefits from singular actions.

NO.	ASPECT OF CONSIDERATION
	Expansion of resilience adaptation pathways (cont)
6	Future plan updates could develop a suite of plausible future scenarios through a participatory process and based on climate, drought and other drivers of change. The development of future scenarios could consider how trends, shocks or stresses (including drought) will interact with and likely affect the region's economic, social and environmental characteristics, and the implications for diverse stakeholder groups. Consideration of a mix of livelihoods and sectors, including those that rely less on agriculture and water, such as education and tourism may be beneficial in directing initial steps.
	Resilience action planning
7	Future updates of the plan could identify potential interactions or interdependencies between actions to provide more guidance for sequencing actions. The focus should be on prioritising, sequencing and linking actions into alternative and complementary pathways with potential triggers for when each action occurs.
8	Future plan updates could focus more on incorporating the concepts of transition and transformation and their practical application in resilience planning. Emphasising these concepts can enhance preparedness for various future scenarios, especially for those where maintaining the current state of economic, social, community, environmental, and governance systems may no longer be viable.
	Implementation
9	As implementation advances, expand the implementation content of the plan with respect to its governance arrangements and the function / operation of the PCG. Future updates of the plan could provide further detail on roles and responsibilities under working partnerships. Future updates may also provide direction on the main purpose of each partnership which may be tracked to identify ways to enhance existing relationships among groups and for determining where new collaborations and partnerships are potentially required
10	Future plan updates could further define and build upon established structured learning processes and utilise monitoring and reporting to inform any changes to priorities. A focus on building up adaptive governance principles may inform the plan, including checkpoints to understand how the PCG is operating in accordance with resilience principles.

NO.	ASPECT OF CONSIDERATION
	Monitoring, evaluation and learning framework
11	Further develop structured approaches to capture lessons from performance measures, linked with monitoring in addition to lessons from annual evaluations currently identified in the MEL. Integrate lessons learned from the plan's existing evaluation questions back into the plan's actions. Continue to enhance and mature the plan's MEL processes over time as the plan transitions from foundational into a performance posture.
12	Further develop performance indicators tied to actions in the plan's MEL plan. This will improve accountability by showing the degree to which proposed priorities and actions contribute to the plan's articulated vision and outcomes. This could include an expanded set of MEL indicators, including drawing on those suggested by the Future Drought Fund's MEL framework, that could be tracked with Australian Bureau of Statistics (ABS) census data. For effective implementation these may be tied to other ongoing monitoring processes.
13	Future plan updates could develop key decision criteria to support action prioritisation. This may align within the MEL framework and evaluations on how plan performance occurs.
	Resilience assessment
14	With a focus on more transformative actions, future plan updates could be supported by an updated resilience assessment which provides further detail on resilience in different sectors, supply chains and segments of the community. This could build on the existing drought resilience assessment to place more focus on identifying the barriers and enablers of adaptive and transformative capacities identified as needed for drought resilience.
15	Ensure future iterations of the plan are qualified by a review of the Resilience Assessment components to identify key circumstantial changes which have occurred.


Uralla
URALLA SHIRE COUNCIL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Regional Council