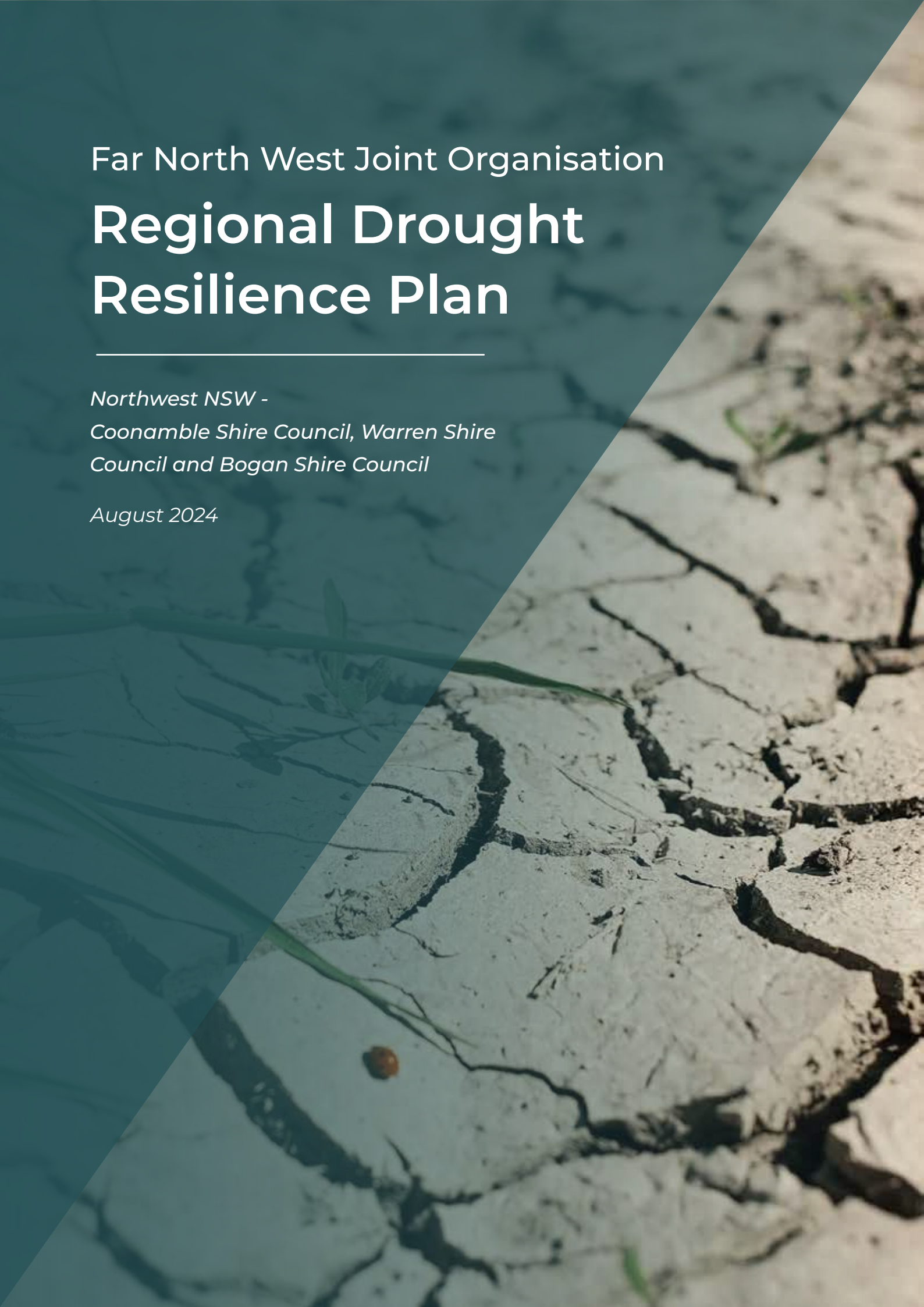




Far North West Joint Organisation

Regional Drought Resilience Plan

*Northwest NSW -
Coonamble Shire Council, Warren Shire
Council and Bogan Shire Council*

August 2024

Acknowledgement of Country

We acknowledge the traditional custodians of the lands we are on, including the Wailan,



Ngemba, and Wiradjuri People, and pay our respects to their Elders past, present, and emerging. We celebrate the strength, courage, and resilience of these communities, which inspire all generations to contribute towards a better New South Wales.

As individuals, communities, and governments, it is our collective responsibility to honour the culture and customs that have nurtured and continue to nurture this land. We endeavour to create a safe and inclusive environment for current and future generations, guided by wisdom of the traditional owners and aspirations of all who share this Country.

Foreword

This Regional Drought Resilience Plan (RDR Plan - 016) emerges from a collaborative effort across local government boundaries involving community consultation and with the Coonamble Shire Council, Warren Shire Council, Bogan Shire Council which together form the Northwest NSW Region.

This initiative embodies their collective ambition to significantly lessen the impacts of drought, enhance the viability of local businesses throughout these challenging periods, and sustain the economic productivity of the region. Together the Councils strive to enable their communities to emerge from period of drought more robust, adaptable and sustainable, with confidence of long-term liveability within the region.

The Northwest Region of NSW is an arid region of marginal rainfall and scarce water resources. The additional challenges posed by drought are not only a testament to the harsh realities faced by our communities, farmers, and landscapes but also reinforces resilience, innovation, and unity.

This plan is a proactive roadmap for our future, drawing upon the knowledge of our land, the ingenuity of our people, and the strength of our communities. It recognises that the wellbeing of our region is inextricably linked to our ability to anticipate, prepare for, and adapt to the changing environment and climatic events. By engaging with all sectors of the community, including Councils, businesses and farmers, the RDR Plan leverages local

knowledge, scientific research, and practical experience to forge a path forward.

Our region's history is marked by resilience in the face of adversity, and a constant awareness of water scarcity, driving the continual management of resources, whether in times of drought or relative abundance. The recent episodes of drought have underscored the necessity to enhance our proactive measures, focusing on strengthening our environmental, economic and social frameworks to mitigate these conditions.

This RDR Plan lays out strategic priorities and actions that will help us reduce the impact of drought, not only to support our communities during times of scarcity, but to improve the liveability of our communities to be more resilient in times of drought while ensuring the sustainability of our agriculture, local businesses and natural resources. By collectively enhancing these goals, we are setting a course for a resilient, economically vibrant, and sustainable future.

Our sincere gratitude goes to our people, partners and organisations who have contributed to the development of this plan. Your insights, expertise, and dedication have been invaluable in forging a legacy of resilience for future generations.

Signed by Ross Earl

Ross Earl

Executive Officer

Far North West Joint Organisation

Contents

Acknowledgement of Country	2
Foreword	3
Contents	4
Introduction	5
Vision	8
Drought Resilience at a Glance	8
A Plan for Drought Resilience	10
Objectives	10
Strategic Alignment	10
About this Regional Drought Resilience Plan	11
Purpose of the Plan	11
The Process for RDR Plan Development	12
Background Contexts & Key Inputs	12-13
Other Important Linkages	14
Our partners	14
Regional Profile	15
Future Drought Projections and Impacts	27
Our Drought Resilience Journey	38
Long-Term Water Security Projects	42
Telecommunications Security	52
Stronger Communities Program	62
Sustainable Recreation & Tourism Strategy	72
Monitoring, Evaluation and Learning	81
Appendices	82
Appendix 1: Glossary of Key Terms	82
Appendix 2 References	85
Appendix 3 Background Context and Key Inputs	87
Appendix 4: Long List of Projects	95
Appendix 5: Stakeholder Engagement Plan & Community Consultation Report	107
Appendix 6: Projects Economic Feasibility Assessment and Benefit Cost Ratios	119
Appendix 7: Community Consultation RDRP016 Coonamble, Warren and Nyngan.....	128

Introduction

The Regional Drought Resilience Planning Program (RDR Plan) ('The Program') is designed to enable local governments and their communities to better prepare for, respond to, endure and thrive during, and recover from drought.

The Far Northwest Joint Organisation (FNWJO) is a representative body for the three Shire Councils of Bourke, Cobar and Walgett. FNWJO lodged successful applications to develop a Regional Drought Resilience Plan on behalf of seven Councils of Bogan, Bourke, Brewarrina, Cobar, Coonamble, Walgett, and Warren Shire.

All seven councils are part of the Western Plains Functional Economic Region. The councils were grouped into two consortia based on their location within the Functional Economic Regions.

The first consortium, known as the Far Northwest Region, includes Bourke Shire, Brewarrina Shire, Cobar Shire, and Walgett Shire. The second consortium, known as

the Northwest Region, comprises Bogan, Coonamble, and Warren Shires.

This Regional Drought Resilience Plan (RDR Plan-016 or The Plan) relates to the Functional Economic Region of Bogan Shire, Coonamble Shire and Warren Shire. The Plan was codesigned with the Bogan, Coonamble and Warren Shire Councils and their respective communities, and for the purpose of RDR Plan-016 will be referred to as the **Northwest Region**.

The Plan included:

- A drought resilience literature review and an initial resilience assessment of the Northwest Region.
- Engagement with the community members, organisations, and local Councils.
- Development of initiatives and projects to improve the drought resilience of the region across four outcome areas:²

People, Culture, and Community	Enhance regional liveability, foster a robust and attractive community, and improve social resilience and wellbeing.
Economy	Expanding the business and agricultural sector's selfreliance and performance, ensuring stability and growth within the region's economy.
Landscape and Natural Environment	Improving the environmental resilience of the entire regional landscape, including agricultural lands and river systems.
Infrastructure and Built Environment	Strengthening infrastructure to support economic and environmental sustainability.

Figure 1 – Outcome Areas

¹ Far North West Joint Organisation (FNWJO) is a representative body for several local government organisations as proclaimed in the Local Government Amendment (Regional Joint Organisations) Act 2017 No 65. Joint organisations, by this proclamation, are formally included in the Local Government Act 1993.

² The outcome areas were derived from consultation with the communities and Councils of the Northwest Region.

The initiatives and projects form part of a Drought Resilience, Adaptation and Management model that has three pillars to prepare, respond and limit the impact of droughts. Those Pillars include³:

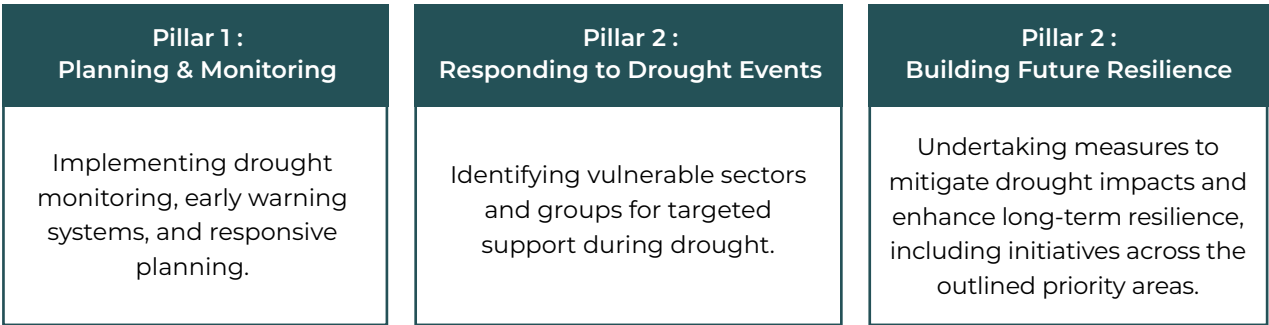


Figure 2 - Drought Resilience, Adaption and Management Model Pillars

The Northwest Region of New South Wales is confronted with a spectrum of challenges that are heavily influenced by shifts in demographics, economic dependencies, and vulnerabilities associated with extreme weather events.



Figure 3 - Drought impacts on social, environment and economy (Source: Adapted from Meridian Urban)

Demographic trends in the Northwest region show a concerning trajectory:

- an expected population decline of 11% over the next 15 years.
- a noticeable decrease of 1.8% in the population since 2018⁴.
- a dramatically ageing demographic, and
- the outward migration of younger generations, largely attributed to the pursuit of opportunities beyond the traditional agricultural sector and compounded by concerns regarding work-life balance and the uncertainties brought about by natural disasters.

These demographic shifts pose a considerable threat to the social and economic framework of the region, through reduced skilled workforce, ageing workforce and pressure on volunteers and business to do more with less. Strategies are essential to retain more young people in the region and to attract new, younger residents to contribute to the region’s long-term viability and prosperity.

Among the climatic concerns are anticipated increases in temperatures, modifications in rainfall patterns, and escalation of bushfire risks.

³Adapted from Crossman, 2018. Also see the United Nations Drought Resilience Adaptation and Management Policy Framework, (United Nations Convention to Combat Desertification) August 2019.

⁴NSW Government, Western Plains Regional Economic Development Strategy 2023 Update (February 2023), available at <https://www.nsw.gov.au/sites/default/files/2023-02/Western-Plains-REDS-2023-Update.pdf>.

These factors collectively underscore the necessity to implement robust adaptation and mitigation strategies. Such strategies will help protect and sustain the region's agricultural productivity, biodiversity, and the overall health of the community.

To provide a geographical context for the Northwest Region, RDR Plan-016:

- Bogan Shire is situated at the junction of the Mitchell and Barrier Highways and located around the geographical centre of NSW. The Shire has an abundance of productive agricultural land for wool, cattle and cropping enterprises. Mining is also expanding. Bogan Shire Council has a population of 2467 people (ABS 2021), an area of 14,611 square kilometres and includes the town of Nyngan and the villages of Girilambone, Hermidale and Coolabah.
- Coonamble Shire is on the Castlereagh Highway between Dubbo and Lightning Ridge and is bounded on one side by the Warrumbungle National Park and on the other by the Western Plains and Macquarie Marshes. The district's broadacre dryland cropping and livestock grazing is highly productive. Coonamble Shire has a population of 3732 people (ABS 2021) an area of 9926 square kilometres and includes the villages of Gulargambone and Quambone.
- Warren Shire is located off the Mitchell Highway, 120 kilometres north west of Dubbo. The district has a highly productive agricultural industry, excelling in the production of sheep, wool, cattle, grain and cotton. Irrigation for farming is sourced from the Macquarie River. The Shire is known for the Macquarie Marshes and internationally renowned Merino Studs. Warren Shire Council has a population of 2550 people (ABS 2021), an area of 10753 square kilometres and includes the villages of Nevertire and Collie.

Coonamble, Warren and Bogan Shire Councils map



Figure 4 – Map of NSW with Coonamble, Warren and Bogan Shire Councils highlighted. (Google Maps, 2024)

Vision

In the Northwest Region, our resilience against drought is forged through collaboration and co-design with our communities and councils. This vision is built on a foundation of innovative practices, nurtured by strong local networks, and shaped by the diverse voices of our region. It acknowledges the inherently arid and harsh landscape of our regions.

Our vision is to:

- Cultivate a well-prepared and robust community, where every sector works together to sustain our way of life and enhance regional well-being.
- Focus on actions that protect our natural environment, strengthen our local economy, and enrich the social fabric of our community.
- Through collective effort, convert challenges into opportunities for growth and adaptation.
- Emerge from each drought more connected and resilient than before.

To underpin the vision, our strategy is to be dynamic and inclusive, continuously refined through dialogue with our community and adaptive to changing climatic conditions.

Our plan integrates adaptive strategies to respond to changing conditions. This includes continuous monitoring of water resources, flexible infrastructure projects, and community driven initiatives that can be adjusted as new information and technology becomes available.

Strategic investments in water infrastructure, connectivity and sustainable practices are designed to enhance capacity to adapt to future climatic variability.

This plan was developed from extensive stakeholder engagement, involving local government, community members and groups, and various industry sectors. Initial consultations included diverse representation from local Councillors, farmers, businesses and residents. Feedback was gathered through workshops, surveys and follow-up meetings, ensuring that the plan reflects the community's needs and priorities.

By moving forward together, the intent is that we safeguard our region's vitality, preserve our natural resources, and build enduring resilience to drought. Through ongoing dialogue and collaboration, we ensure that the plan remains relevant and effective, with a strong emphasis on local leadership and community engagement.

Through this collective effort, we aim to convert challenges into opportunities for growth and adaptation, ensuring we emerge from each drought more connected and resilient than before.

Drought Resilience at a Glance

Drought resilience in our region is defined as the capacity of communities, local governments and other stakeholders to anticipate, prepare for, respond to and recover from drought conditions. This resilience is rooted in our ability to adapt, transition and transform our economic, social, and environmental systems in the face of changing climatic conditions. It reflects our commitment to maintaining and enhancing the vitality of our region through collaborative efforts and innovative practices.

Bogan, Coonamble and Warren Shires emphasise that resilience within the region should not just encompass the capacity to withstand drought, but also the ability to transition and transform their systems when maintaining the status quo is no longer viable. This includes exploring new economic opportunities, adopting sustainable agricultural practices, and fostering social cohesion and connectivity.

The Drought Resilience Program 'Logic Map'⁵ is a tool that solidifies our resilience plan into a clear, actionable sequence. It provides stakeholders with an immediate understanding of the steps we are taking to strengthen the region's ability to manage drought conditions.

The 'Logic Map' serves as a focused overview, ensuring that every element of the plan is

⁵ Investment logic mapping is an early-stage technique that assists in developing and documenting the logic that underpins a potential investment decision, before specific solutions are identified, and before a decision is made. Note: The program 'Logic Map' does not represent a theory of change.

aligned with key objectives of preserving regional vitality and managing resources sustainably. It operates as both a planning guide and a communication framework.

By presenting this at-a-glance summary, the Logic Map becomes a foundation of the plan's

implementation, facilitating co-design across all levels of involvement. This plan recognises that resilience is not just about returning to pre-drought conditions but about evolving and strengthening our systems to better withstand future challenges.



Figure 5 – Drought Resilience Logic Map (The Stable Group, 2024)

A Plan for Drought Resilience

The Regional Drought Resilience Planning Program (RDRPP) is one of the five focus areas of the Commonwealth Government's Future Drought Fund. The NSW RDRPP is jointly funded through the Australian Government's Future Drought Fund and the NSW Government, supporting local governments to work together regionally to plan for drought resilience proactively and pragmatically. The resulting plans focus on innovative ways to build regional drought resilience, taking steps to plan now to stem the impact of future drought on our region.

Objectives

Consistent with the strategic priorities and objectives of the Future Drought Fund Agreement, the objectives of the RDR Plan for Bogan, Coonamble and Warren are to:

Develop the agricultural sector's self-reliance and economic performance:

- Promote diversification within the agricultural sector to reduce dependence on traditional farming.
- Strengthen local supply chains and improve infrastructure to support agricultural productivity and resilience.

Develop the environmental resilience and natural capital of agricultural landscapes:

- Promote sustainable land management practices that protect and enhance natural ecosystems, such as the Macquarie Marshes and other critical habitats.
- Enhance groundwater resources for agricultural and domestic use, ensuring equitable access to water across the region.

Strengthen the social capital and wellbeing of the communities:

- Foster social cohesion to mitigate the impacts of isolation and mental health challenges.
- Improve telecommunications and digital connectivity to reduce social isolation and support community and economic activities, particularly in remote areas.

- Support volunteer networks and reduce volunteer fatigue by providing resources and recognition for community contributions.

Understand and plan for the region's current and future drought resilience by identifying actions, pathways, and opportunities for mitigation, adaptation and improvement:

- Engage with diverse community groups, including First Nations people, young families, and youth to co-develop and continuously refine resilience strategies.
- Ensure ongoing consultation and engagement with stakeholders to adapt strategies to changing climatic conditions and emerging challenges.

The objectives of this plan were derived from the initial extensive in-person consultation, with workshops held across four locations – Coonamble, Marra, Warren and Nyngan, attended by 58 community representatives (~12% under 40). Participation by representatives from NSW Farmers, Progress Associations, Chambers of Commerce, environmental groups, the mining industry and agricultural industry, as well as active community members, meant that the objectives that guided the project reflect the wider community needs, rather than being constrained to a particular group.

This plan identifies priority projects and an implementation pathway to achieve the outcomes and objectives of the RDR Plan. It integrates insights and contributions from stakeholders, so identified projects are practical and impactful align with local conditions, resource capacity and capabilities.

Strategic Alignment

The Northwest RDR Plan is consistent with National Framework for Drought Policy (National Drought Agreement) and Australian Government Drought Response, Resilience and Preparedness Plan. The Plan has a focus on long term resilience and preparedness.

The Plan also has strong alignment with national, state, regional and local plans, strategies and policies⁶ including the:

⁶ Refer to Appendix 3 – Background Contexts and Key Inputs for the alignment and relevance of studies, Global academic and government derived strategies to the Plan.

- NSW State Infrastructure strategy - guiding principles:
 - **Strengthen service reliability and resilience** – investments in existing assets should focus on lifting the reliability of those assets and resilience of communities most at risk of disruptive events.
 - **Optimise existing assets and networks** – opportunities to fully utilise existing assets should be prioritised, including through augmentation of existing networks, maintenance and upgrades.
 - **Partner with local governments and communities** – engagement and involvement of local governments, communities and other stakeholder groups should be embedded throughout planning, design, delivery and operation.
- NSW Water Regions priorities and objectives.
- Regional Economic Development Strategies (REDS) for the applicable Functional Economic Region (FER).
- Local Government Area Integrated Water Cycle Management / Regulatory and assurance framework for the local government councils / water supply authorities exercising water supply and sewerage functions and the Local Government Act 1993 or the NSW Water Management Act 2000.
- Regional Water Strategy for the Local Government Area.

Further, the development of the plan also included consideration of:

- Investment logic mapping.
- CSIRO Regional Drought Resilience Plans, Independent Review Guide.
- NSW Department of Planning and Environment – Water guidance notes for options assessments.
- Regional NSW – Business Case and Strategy Development Fund Regional Infrastructure Business Case Template.
- Alignment to the competency of the local water authority (ability to fund and operate).
- Consideration of the Objectives of the Australian Government Future Drought Fund.

About this Regional Drought Resilience Plan

Purpose of the Plan

The Northwest RDR Plan has been developed in accordance with the guidelines set within the NSW Government Regional Drought Resilience Program. Through co-design, knowledge sharing, and strategic action, with key stakeholders and the voices and experiences of the region's people, the RDR Plan seeks to:

- Build strong, resilience social and community networks that are essential for thriving in an uncontrollable and often harsh climate, through fostering the ability of the communities to adapt and transform in response to social, environmental, and economic shocks and uncertainties, ensuring continuity and support during times of crisis.
- Foster connectivity within and across the communities in the region, contributing to great social capital, well-being, and security.
- Empower the communities to implement transformative activities that enhance their resilience to drought and support sustainable natural resource management, through measures to adapt to changing conditions and mitigate the impacts of drought on industries beyond agriculture, such as tourism, local business, and services, thereby sustaining overall economic vitality of the region.
- Mitigate the economic, social, and environmental impacts of drought, ensuring the long-term productivity and sustainability of the region.
- Improve the region's effective adaptability and maintain economic vitality through sustainable practices and careful stewardship of both human and commodity resources.

The RDR Plan process is intended to be practical, implementable and ongoing. As the region undertakes the specified actions, this plan will assist with monitoring progress and future learning.

The Process for RDR Plan Development

The planning process for the Northwest region: incorporating Bogan, Coonamble and Warren Shire Councils involved a four-stage process (Figure 4).

1. A broad governance structure.
2. A Regional Drought Assessment to provide a robust evidence base using wide consultation.
 - o Consultation with the Bogan, Coonamble and Warren communities.⁷
 - Engaged with 58 community members through 4 community consultations, capturing the voices of stakeholders ranging from Local Shire Councillors to carbon farmers and mining industry representatives.
 - Considered contributions from across the region, with varied participants like health workers, educators, and NSW Office of Regional Youth.
 - Media outlets were utilised to invite the community to consultations, resulting in additional post-consultation interactions, including 2 written submissions and 2 telephone calls, enriching the understanding of the community's needs and concerns.
 - o Initial identification of the Council's priorities.
 - o Review of related Federal and NSW Government policies, initiatives and potential assessment criteria related to potential projects under the program.
 - o Review of over 40 community strategic plans, economic development strategies, drought management plans, and regional water strategies, etc; to determine past and future impacts of drought and identify existing commitments. These included:
 - Council Community Strategic Plans.
 - NSW Government's Regional Economic Development Strategies (REDS) for each of the Functional Economic Regions (FER).
 - Barwon – Darling Valley Annual Surface Water Quality Report.
 - Far West Enabling Regional Adaptation Report.
 - Far West Regional Plan.
 - Western Regional Water Strategy.
 - Macquarie – Castlereagh Water Strategy.
3. The RDR Plan, which provides a high-level summary of the findings. The Plan includes actions and interventions to mitigate drought impacts in the region.
 - o Further engagement and visits to the Bogan, Coonamble and Warren regions.
 - o Development of Technology Report, listing the Priority Drought Resilience Projects and information developed for each Project.
4. An Investment Framework
 - o Development of a pathway for each of the priority projects to be taken forward.
 - o Provision of the draft plan for comment by the FNWJO and Councils.
 - o Provision of the final plan to the FNWJO.

Background Contexts & Key Inputs

This plan draws from, complements, and builds upon previous work in developing a regional profile and identifying the impacts of past and future droughts. (Refer to Appendix 3).

⁷ Refer to the Stakeholder Engagement Plan and Consultation Report at Appendix 5.

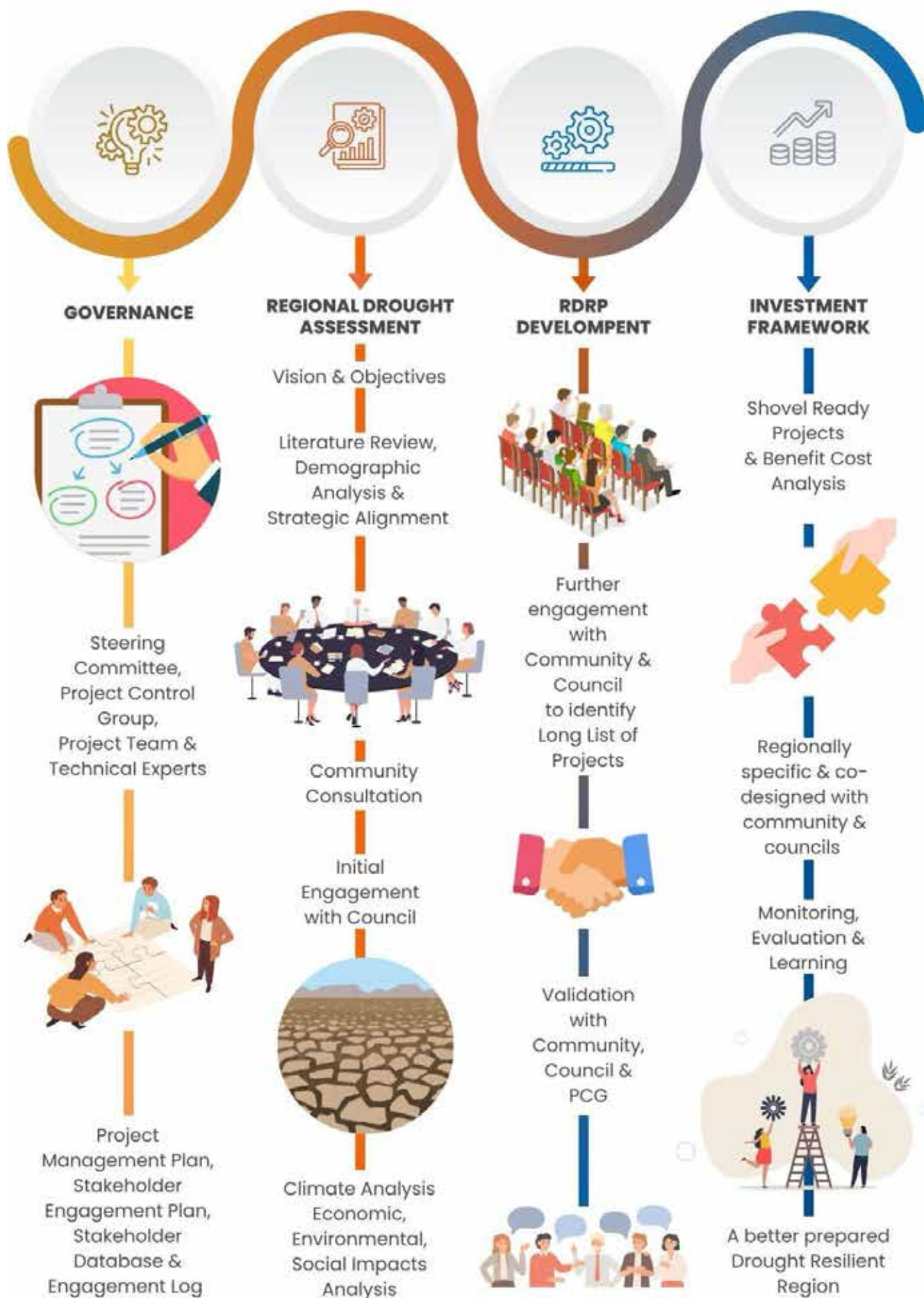


Figure 6 – Process for RDR Plan Development. (The Stable Group, 2024)

Other Important Linkages

It is the intention of this Plan that it is considered and factored into a range of other strategies and plans – including (but not limited to) the following list.

- regional plans
- regional economic development strategies
- regional transport and infrastructure plans
- natural resource management plans
- water resource plans
- local and district disaster management plans
- local asset management and capital works plans
- local corporate and community development plans
- land use planning schemes
- local and regional health strategies

The intention is also, that this plan will be closely considered by charities; non-government organisations; not-for-profits; businesses; and government agencies with an interest in the region.

Our Partners

Broad stakeholder engagement was conducted in developing the RDR Plan, including contributions from the Stable Group and the Far Northwest Joint Organisation. The Project Reference Group⁸ provided essential local insights, helping to refine strategies and define drought resilience actions.

Initial consultations with communities took place from 10 to 14 February 2024 in Coonamble Shire, on 14 February in two locations in Warren Shire, and on 15 February in Bogan Shire, leading to the development of a long list of projects (Appendix 4).

Projects were further refined through a second round of consultations conducted via Microsoft Teams, engaging representatives from all four Shires, despite lower attendance compared to earlier meetings. A survey was circulated to gather additional input on project prioritisation, receiving feedback from 18 community members.

Community consultations were coordinated closely with local councils and regional management bodies and adhered to strategic priorities of economic, environmental, and social resilience. Sessions used the Drought Resilience Logic Map to focus discussions on understanding community perceptions, drought-related risks, and potential resilience actions.

Stakeholder engagement was complemented by a commissioned review of drought innovation, identifying potential transformative projects across multiple resilience research areas such as water management, digital technology, and community development. (Refer to Appendix 5).



Figure 7 – Stakeholder Engagement Process for RDR Plan Development. (The Stable Group, 2024)

This early engagement facilitated the integration of diverse regional knowledge and expertise, culminating in a collectively owned, region-specific plan. This process not only identified key regional priorities but also ensured the plan was co-designed with the community and council to address the unique challenges and opportunities in Northwest NSW.

⁸ SRG members include participating council representatives and NSW Government representatives. The SRG is co-ordinated by the Far North West JO

Regional Profile

The portion of the Northwest region, which is covered by this plan, covers an area of 35,297 km², and includes the Coonamble, Warren and Bogan Shire Councils (Figure 5). It is home to over 8,749 people. The majority of the population, services and administration of the Region are centred in Dubbo.

The region spans country of the Wiradjuri, Wongaibon, Weilwan, Ngemba, and Kamilaaray Nations.



Figure 8 – Map of Region that the RDR Plan covers with Coonamble, Warren and Bogan Shire Councils labelled. (Google Maps, 2024)

The key-socio-economic statistics for the Northwest regions and each of the three LGAs are:

Bogan			Coonamble			Warren		
Population			Australian Digital Inclusion Index					
2,467	3,732	2,550	2,467	3,732	2,550			
Projected Population (2041)			Unemployment Rate					
1,581	2,965	1,755	3.2	6.7	3.2			
Median Age			SEIFA 2016 Socio-Economic Index of Social Disadvantage					
41	39	37	948	893	952			
Aboriginal & Torres Strait Islander Peoples			Number of Local Businesses					
440	1,267	392	449	589	449			
% of Aboriginal & Torres Strait Islander Peoples			Population that Need Assistance due to Disability					
17.8	33.9	14.3	153	257	180			
% People who speak a language other than English at home			Decline in Population 2001 - 2021 (%)					
440	1,267	392	-20.1	-18.9	-19.2			
Median Total Personal Income (\$/yr)			Decline in Aboriginal & Torres Strait Islander People 2001 - 2021 (%)					
41	39	37	+34.9	+32.9	+5.6			

Figure 9: Socioeconomic Profile of Individual Local Government Areas (Source: ABS, REMPLAN, NEMA (2024))

The Natural Landscape of the Region

The Northwest region of New South Wales encapsulates a rich tapestry of natural landscapes, from the sprawling plains to riverine ecosystems and significant conservation areas. These landscapes not only define the physical character of the regions but also underpin their ecological, cultural, and economic vitality.

Geographical Overview and Biodiversity

The geographical diversity of these regions supports a wide range of ecosystems, each with unique biodiversity, as follows:

- Nyngan, the main town in the Bogan Shire is situated along the Bogan River and features expansive plains that support a mix of natural bushlands and Bogan River weir pools supporting birdlife and threatened species as well as agricultural lands.
- Coonamble Shire is renowned for its highly productive fertile floodplains along the

Castlereagh River and natural grasslands.

- The Macquarie Marshes, within the Warren Shire, represent one of Australia's most significant wetlands, offering vital habitats for myriad bird species, including migratory birds and waterbirds.

Agricultural Land Use

Agriculture forms the backbone of the Northwest Region economies with land use typically a balance between cropping, grazing, and conservation. Bogan Shire and Coonamble Shire focus on broadacre, dryland farming and livestock grazing reflecting the adaptation to the semi-arid climate. Warren benefits from the Macquarie River and the Albert Priest Channel, enabling diversification into irrigated agriculture, especially cotton, which contributes to its economic profile.

There has been a significant increase in land values which have doubled in some areas in the past 10 years. Agricultural land is seen as a viable investment and developed land is attracting a premium.

The following tables outline the primary agricultural activities, along with the key crops or livestock associated with each Shire.

Bogan Shire	
Total area of LGA (ha)	1,461,100
Primary Agricultural Activity	Grazing sheep and cattle, Broadacre dryland farming, wheat, barley
Total area of broadacre crops (ha)	167,377
Total gross value agricultural production	\$232,690,000

Coonamble Shire	
Total area of LGA (ha)	992,600
Primary Agricultural Activity	Grazing sheep and cattle, Broadacre dryland farming, wheat, barley & chickpeas.
Total area of broadacre crops (ha)	226,948
Total gross value agricultural production	\$266,170,000

Warren Shire	
Total area of LGA (ha)	1,076,000
Primary Agricultural Activity	Grazing sheep and cattle, Broadacre dryland farming & Irrigated Cropping
Total area of broadacre crops (ha)	194,479
Total gross value agricultural production	\$249,260,000

Figure 10: Primary Agricultural Activities of each Local Government Area. (Source: REMPLAN, NEMA, Warren Shire Council (2024))

Natural Water Resources and Management

During the most recent drought, from January 2018 – January 2020, the Barwon-Darling Valley experienced extreme hot and dry conditions, which led to substantial reductions in river flow and water quality, as well as impacted community water supplies and aquatic habitats.

Availability of, and access to water from both groundwater and surface water resources is an essential enabler of diversity and prosperity of communities, agriculture and industry in the Northwest Region. Given the variability of rainfall and historic droughts, current efficient water uses and sustainable management practices are an essential part of the lived experience.

Existing strategic planning efforts and recent community consultations have endorsed water efficiency and water management as a critical concern across the Northwest Region. The Northwest Region supports strategic planning efforts which address the challenges of water security not only for communities, but for environmental, agricultural and industrial sustainability of their communities.

Water is a highly valued and emotive resource, and the Northwest Region is under continuous threat from inaction; high costs and slow processes; perverse outcomes of water policy or aspirations of industry. Community have expressed a frustration caused by inactivity on water management during RDR Plan consultation. Examples include:

- **Inaction:** The Albert Priest Channel carries water from the Macquarie River at Warren to Nyngan where it meets the Bogan River. Evaporation rates are high and recommendations of the Water and Drought Security Report to line the channel or pipe the channel have not proceeded.

As demonstrated by the very effective Cap and Pipe the Bores Scheme, more efficient movement of water and conservation of water would give industry security into the future enabling investment and creating employment opportunities.

Bogan Shire Council has a counter rational to community with concerns that the costs associated with piping the Albert Priest Channel is not a priority due to costs; and lining of the APC has never been a recommendation by Bogan Shire Council due to the impossibility of protecting the lining from stock and wildlife damage and associated renewal costs. Water Security for the Bogan Shire is a contentious issue, with no easy fix.

- **High costs and slow processes:** Despite the Burrendong Dam reaching 145% capacity during the last flood without structural implications, advocacy to upgrade the Burrendong Dam to provide resilience against future droughts through increased water storage, is not being actioned quickly enough. Increasing the capacity of Burrendong Dam by 20% alone, will enable an extra 200 GL of water storage, the total consumption of water for agricultural and residential purposes in one year. The Federal and NSW Labor Governments are investing \$9.35 million to develop a Final Business Case for the Macquarie-Wambuul Water Security Scheme including changes to Burrendong Dam to increase water supply in the flood mitigation zone of the dam. This is the next step in a thorough and rigorous process and will be subject to further analysis before any decisions are made.

- **Perverse outcomes of government Water Buyback Policy as part of the Murray Darling Basin Plan (MDBP):** Under legislation that was updated in 2023, another 450 gigalitres of water must be bought back from Murray Darling irrigators by the government by

2027. To date, under the Basin Plan, 83GL have been recovered from the Macquarie Valley, above and beyond the legislated target of 65GL, and dramatically higher than the 20GL originally proposed by the Murray Darling Basin Authority (MDBA) in 2010. The over recovery of environmental water has perversely impacted the economic and social structure of Warren Shire with

downturn in the local economy, loss of jobs and population.

• **Aspirations of industry:** Access to the Great Artesian Basin in Coonamble Shire and the northern parts of Warren Shire for stock and domestic water supply is crucial and a highly valued resource Coonamble Rallied against the fracking of underground water reserves in the Great Artesian Basin.

Below is a table that provides an insight into the key natural water resources within each Shire:

Shire	Key Natural Water Resource	Use
Bogan	Bogan River and Albert Priest Channel	Agriculture, Town Water Supply
Coonamble	Castlereagh River and Great Artesian Basin	Agriculture, Biodiversity Conservation, Town Water Supply
Warren	Macquarie River and Albert Priest Channel, Great Artesian Basin in the north of the LGA	Irrigated Agriculture, Agriculture, Biodiversity Conservation, Town Water Supply, pipeline to Cobar

Figure 11: Key Natural Water Resources of each Local Government Area

Regional Weather and Climate Characteristics

The Northwest Region, exhibits variability of climatic conditions, profoundly influenced by water availability and extreme temperature.

North-west Regional Weather and Climate Characteristics include:

- Average maximum temperatures during summer ~ 34°C.
- In winter, the average minimum temperature ranges from 4–6°C.

- Over 50 hot days are experienced Northwest of Nyngan.
- The number of cold nights (< 2°C) experienced < 20°C northwest of Nyngan.

Rainfall across the Northwest Region demonstrates a gradient from east to west. Coonamble mean rainfall is 499mm annually, transitioning to approximately 442mm in Nyngan. This gradient is mirrored and exacerbated by evaporation rates, underscoring the challenges of water management in areas where evaporation outpaces rainfall.

The following table describes the climate characteristics for different periods and their impacts on the Northwest Region:

Period	Characteristic	Impact on Macquarie - Castlereagh Region
1900s - 1940s	Dry Period	Marked by short to decadal droughts, setting a precedent for dry conditions.
1950s - 1990s	Wet Period	A relatively moist interval, providing relief and replenishing water sources.
Post-Millennium Drought	Return to Dry Period	Illustrated by extreme variability, significant droughts and flooding events.

Figure 12: Climate impacts on the Northwest Region

Society, Population and Demographics

The social fabric of the Northwest Region is marked by a strong sense of community, resilience, and adaptability. These characteristics are crucial in facing the socio-economic challenges and leveraging the opportunities that arise from demographic shifts and economic transitions. Residents of the North West Region have long established generational ties to the land - both First Nations and non-Indigenous families and have a strong

sense of the region being “home”.

The population of the Northwest Region has witnessed a continual decline over many years due to a range of factors including economic opportunities, lifestyle preferences, and access to essential services. Drought and prolonged dry periods have been a trigger for families and younger people to move out of the region to fulfil educational, business and career aspirations resulting in a sustained and significant loss of population over many years. This is a concerning trend as Australia and NSW’s populations continue to increase.

The following demonstrates loss of approximately 20% of the population in the 20 years from the 2001 census to the 2021 census.

Census Information	Population of Bogan LGA	Population of Coonamble LGA	Population of Warren LGA
2001 Census Year	3083	4567	3150
2021 Census Year	2467	3732	2550
Total population loss	- 616	- 835	- 600
Average change per annum	- 30.8	- 41.75	- 30
% loss over 20 years	20%	18%	19%

Figure 13: Population decline of the Northwest Region 2001-2021. (Source: ABS 2024)

A key characteristic of the population in the Northwest Region is the aging population, placing additional pressure on aged care service delivery, healthcare, and community support structures. The Northwest Region is also challenged by the outmigration of younger people to regional centres such as Dubbo or to larger cities in search of education and employment opportunities.

Despite the obvious trend, each Council remains optimistic and embraces opportunities to improve the liveability of their community and attract skilled workers. For example:

- **Bogan and Nyngan:** These areas have witnessed fluctuating population trends, largely influenced by employment opportunities in agriculture and mining sectors. Efforts to diversify the economy and improve local infrastructure are aimed at stabilising and potentially increasing the resident populations.

- **Coonamble:** Faced with a declining population over the years, Coonamble has been focusing on revitalising the community through enhancing local services, supporting agricultural innovation, and promoting cultural and eco-tourism as means to attract new residents and retain existing ones.
- **Warren:** Warren has experienced demographic shifts driven by changes in the agricultural sector and water resource challenges. Community resilience and adaptability are evident in efforts to attract investment and develop sustainable practices.

Built Form and Infrastructure

The Northwest Region exhibits a diverse array of built environments, from historic town centres with heritage buildings to modern agricultural and mining infrastructures that underscore the regions’ economic foundations.

Urban areas typically feature a mix of residential, commercial, and public buildings that cater to the local community's needs, whereas rural areas are characterised by extensive agricultural lands, supported by infrastructure such as homes, fencing, silos, sheds, and irrigation systems.

An observation to note across the region is the increase in vacant buildings in the CBD of each of these towns. Many buildings are owned by older people who are relying on the capital asset for superannuation and have unrealistic expectations for re-sale value. The buildings are often left vacant, in need of repairs and maintenance and no longer "fit for purpose" for new and emerging businesses. Younger businesspeople are opting to work from home, co-share workspaces or have on-line business. This change to business models is reducing the need for traditional "shop fronts" and are leaving our empty spaces in our CBD's.

Despite significant advancements, the Northwest Region's councils face challenges related to aging infrastructure, water security, and the need for change to sustainable energy and digital connectivity solutions. Addressing these challenges is crucial for future-proofing the regions against economic and environmental pressures.

- **Bogan Shire Council:** Infrastructure development has been geared towards supporting the mining and agricultural sectors, with significant investments in road and rail upgrades to improve logistics and transport efficiency. The Nyngan Solar Power Plant represents a milestone in the regions' move towards renewable energy. Bogan Shire Council is improving off-river storage with \$20 Million in recent years spent on water security infrastructure.
- **Coonamble Shire Council:** Coonamble's focus has been on enhancing water management systems and upgrading local roads and bridges to support its agricultural base. Efforts to improve flood mitigation and water storage capabilities are ongoing.
- **Warren Shire Council:** Infrastructure in Warren includes the development of water conservation and management projects to support both the town's needs and the surrounding agricultural lands. The town also benefits from investments in community facilities and recreational spaces to improve residents' quality of life.

Significant investments in infrastructure such as mines, feedlots, grain storage facilities and cotton gins underscore the region's role as both an importer and exporter of freight, supporting a diverse range of industries from agribusiness and mining to manufacturing.

Future investment projects shaping the Northwest Region

Current planned or ongoing investment projects of note that will have a significant investment and disruptive effect in the Northwest Region are:

- **Inland Rail:** A transformative infrastructure project enhancing freight efficiency, supporting over 21,500 jobs at peak construction, and providing long-term economic development opportunities.
- **Renewable Energy transition and Resource Sectors:** The region's transition towards renewable energy, including solar, wind, and bioenergy projects, is pivotal in driving economic diversification and reducing carbon emissions. With 75% of the state's coal-powered electricity generation expected to reach the end of its technical life within 15 years, the transition to renewable energy sources is underway. This transition will require significant infrastructure development to connect new energy sources.
- **Digital Connectivity:** Improvements in digital infrastructure to improve NBN and mobile services are vital for economic and social participation, particularly for smaller centres leveraging their locational advantages. "Black spots" are quite obvious to landowners and travellers between towns and villages.

Further water and energy security projects are critical for sustaining regional development, with projects aimed at ensuring reliable access to these essential resources.

A coordinated approach to planning and infrastructure development is essential to maximise investment benefits for the region and minimising the disruptive impacts. Strategic land use planning, lifestyle blocks and housing development, and infrastructure is essential to support the needs of the changing demographic and economic opportunities. Disruptive impacts may include:

- The increased reliance on a temporary workforce is impacting the economy of the Northwest Region towns. The proximity of some of the projects may provide drive-in-

drive out opportunities for residents in competition with local job opportunities.

- Extra competition may arise to provide suitable local housing choices and services that cater to both temporary and permanent residents. Housing reserves are often run down and efforts to provide housing that meets the diverse needs of the community are crucial in supporting the region's growth and prosperity.

Economy

The Northwest Region is a complex and at times vibrant economic landscape, marked by a reliance on agriculture, alongside growing industry of mining and emerging industries such as tourism and renewable energy. Overall, Northwest Region has a Gross Regional Product of approx. \$715 M, with mining and agriculture being significant contributors.

	Bogan LGA (2024)	Coonamble LGA (2023)	Warren LGA (2018)
Gross Regional Product*	\$272 M	\$271.35 M	\$171.22 M
Value of Agriculture, Forestry and Fishing economic output	\$67 M	\$180.2 M	\$158.72 M
Value of Mining	\$66 M	\$0	\$0
Number of jobs in Agriculture, Forestry and Fishing	381	414	463
Number of jobs in mining	380	0	0
Total jobs	1280	1408	1113

Figure 14: Gross Regional Product (GRP) and the economy by Shire. (Source: REMPLAN, NEMA, Warren Shire Council (2024))

Natural Water Resources

Traditionally, agriculture stands as the cornerstone of employment across the Northwest Region. Employment levels and the nature of work have undergone significant changes over recent decades. A trend towards larger, more mechanised farms has reduced the demand for local unskilled and semi-skilled labour, exacerbating unemployment in small towns and communities which is compounded during periods of drought.

The employment landscape is diverse, with substantial roles played by the health care, social assistance, manufacturing, construction, and retail sectors. The Northwest Region faces challenges from external pressures like pandemics and climate variability, yet the promise of projects such as Inland Rail, renewable energy initiatives, and strategic infrastructure investments offer pathways to resilience and growth.

Bogan Shire's, mining and agriculture are the primary economic drivers, contributing significantly to the region's \$272 million GRP in 2024. The presence of minerals like copper, zinc, and lead has historical roots, yet the area's economy remains diversified, with health care, education, public administration, and retail trade also providing substantial employment. Nyngan, known as the Gateway to the Great Outback, has a strategic location on the junction of the Mitchell Highway and Barrier Highway offers a gateway to major freight networks, presenting opportunities for value-adding in agriculture and tapping into global markets for commodities.

Coonamble's economy, while robust, is heavily dependent on agriculture, which accounts for a substantial portion of Gross Regional Product which was \$271.35 M in 2023. The impact of recent droughts, overshadowing even the global pandemic, underscores the need for economic diversification. The Inland

Rail project which will be accessible from the railway junction at Curban presents an opportunity for local employment and industry benefits, with economic uplift projections indicating potential growth in jobs, GRP, and output over a decade.

Warren Shire's Gross Regional Product (GRP) is estimated at \$171.22 million, emphasising the economic significance of its agricultural base. This sector, along with retail trade, education, training, health care, and public administration, accounts for the majority of local employment. The strategic positioning of major freight routes, including the Oxley and Mitchell Highways, further enhances Warren Shire's economic activity, connecting it to broader markets and facilitating the movement of goods.

Tourism in Warren Shire, notably branded as the 'Gateway to the Marshes,' is on the rise, fuelled

by its natural attractions such as the Macquarie Marshes Nature Reserve, a site of international ecological importance. This natural asset not only contributes to the community's quality of life but also attracts visitors, making tourism an emerging sector. However, external factors such as the COVID-19 pandemic, drought, and flooding have left indelible marks on the region, particularly affecting agriculture and tourism.

The economic narratives of Warren, Bogan, and Coonamble highlight the regions' adaptability and potential for sustainable development. Significant challenges have continued to diminish the liveability of the Northwest Region and create uncertainties for investment, yet by leveraging natural assets, strategic location, and emerging opportunities, it may be possible to navigate the complexities of economic diversification, ensuring longterm prosperity and resilience in the face of challenges.

Our History of Drought Impacts

Of all the climate and weather-related conditions that affect Australia, drought is often the most challenging. New South Wales (NSW) in particular, is prone to periods of persistent drought.

Droughts are a natural and recurring feature of the Australian climatic cycle. As such, droughts will come again, and they are anticipated to get worse.

Droughts are challenging times, not just at the farm gate. Droughts do not appear suddenly like other natural disasters or events. They are incremental and start with a dry spell that becomes persistent.

(Regional Drought Resilience Planning: Project Narrative, NSW Government)

The history and impacts of drought in the Northwest Region are characterised by their extensive challenge to economic livelihoods, social structures, and environmental sustainability. Droughts are stressful for farmers, communities and those providing services in the region. Conversely, drought also highlights the resilience and adaptive measures being employed to mitigate these impacts.



Figure 15 - Farm in drought conditions in the Northwest of NSW (NSW Agriculture)

Drought Declaration

Australia has highly variable rainfall records and highly variable periods of low rainfall. Drought is difficult to predict, and difficult to determine a start point as the creeping reality of a “dry period” becomes more severe and pervasive. Droughts are difficult to compare with differences in seasonality, extent, duration, severity, among other variables all contributing to the drought experience⁹. The end of a drought is also difficult to declare with the distressing economic and social impacts being felt long after the landscape has recovered.

Drought in Australia, redefined in policy approaches since the 1990s from a ‘natural disaster’ to a ‘manageable risk’, places farmers in the role of risk managers tasked with planning for recurring drought events rather than as victims of unforeseeable catastrophes. This shift underscores the complexity of drought as not just a meteorological event but a socioeconomic crisis that requires a proactive and informed response from all sectors of society.

The Bureau of Meteorology has four definitions of drought¹⁰, which are meteorological, agricultural, hydrological and socio-economic.

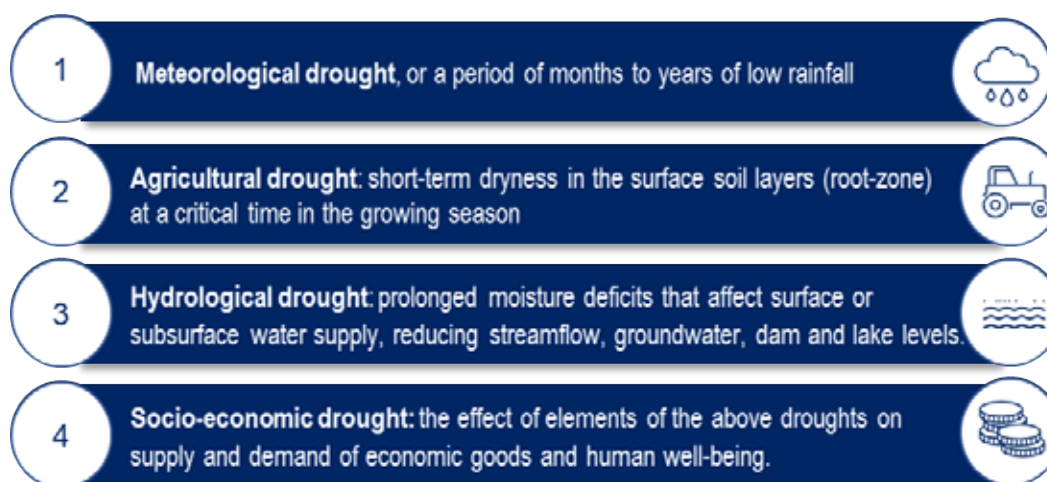


Figure 16 - Bureau of Meteorology Four Definitions of Drought (BoM)

A key feature of the Enhanced Drought Information System (EDIS) is the development of the NSW DPI Combined Drought Indicator (CDI). The CDI integrates a range of data and model outputs in a framework that is useful for decision makers. It combines meteorological, hydrological and agronomic definitions of drought using indexes for rainfall, soil and water and plant growth. From these, a fourth index, drought direction (DDI), is developed¹¹.

Used together, the indices classify six stages of drought. The six stages progress from a non-drought stage where all indicators suggest good conditions for production to recovery, drought affected and improving, drought affected and worsening to fully drought affected.

⁹ & ¹⁰ Bureau of Meteorology Drought Knowledge Centre on-line <http://www.bom.gov.au/climate/drought/knowledge-centre/>

¹¹ Enhanced Drought Information System on-line <https://edis.dpi.nsw.gov.au/cdi-drought-phases>

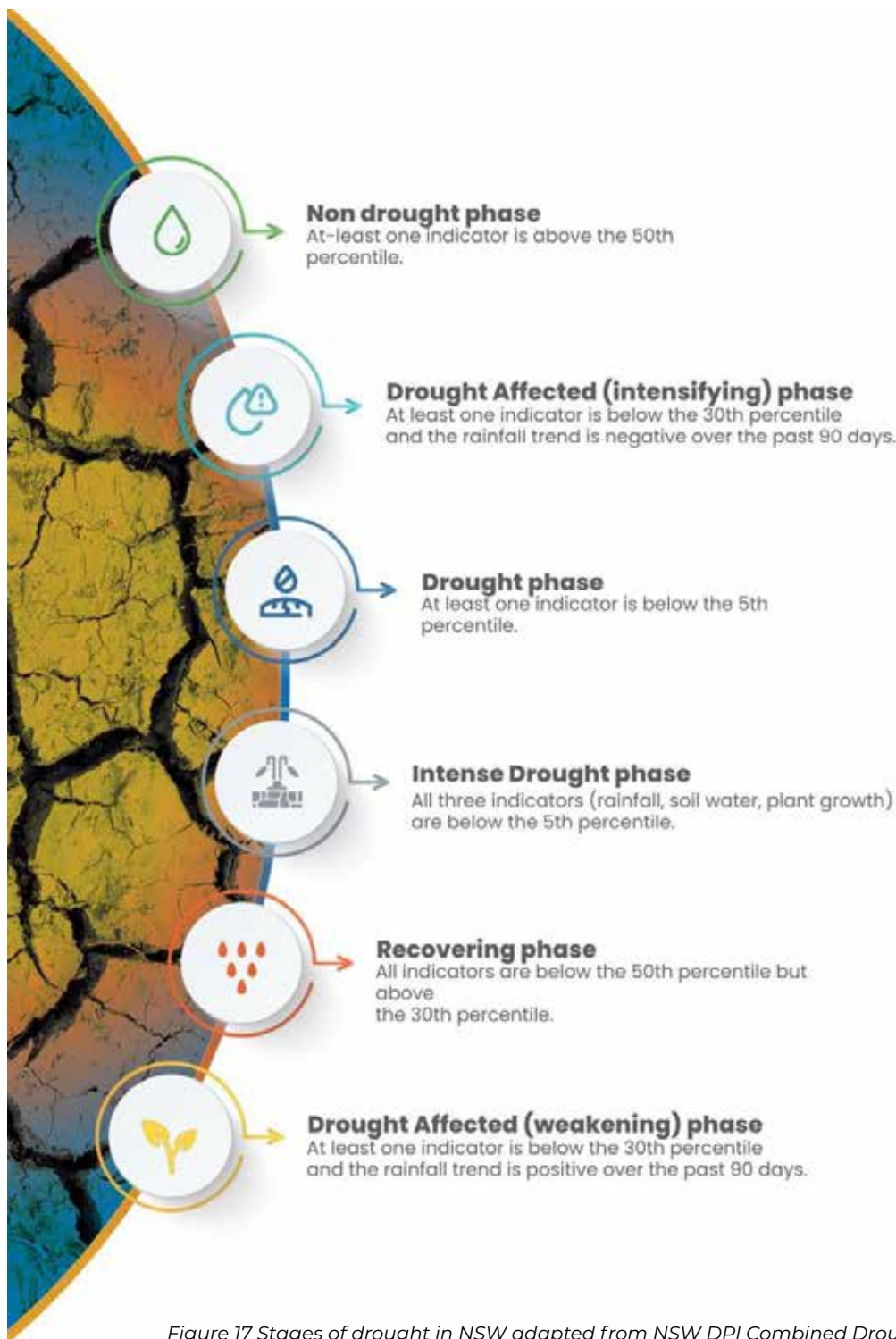


Figure 17 Stages of drought in NSW adapted from NSW DPI Combined Drought Indicator Drought Stages (Adaptation of source: Enhanced Drought Information System (EDIS))

Drought Impacts on Agriculture

The onset of the drought in 2017, less than 10 years after the Millennium Drought, left little time for primary producers to recover and protect themselves against future crises, exacerbating the social and economic impacts of the current drought.

(Regional Drought Resilience Planning: Project Narrative, NSW Government)

The agricultural industry, vital to the Northwest Region, is deeply affected during drought.

Initially in a “dry time” or Drought Affected (Intensifying) Phase, conditions are deteriorating; production is beginning to get tighter. Ground

cover may be modest, but growth is moderate to low for the time of year. This phase is met with changes in productivity such as:

- weaning and destocking, (selling livestock before they reach their potential),

- purchasing fodder (to sustain the core herd),
- changes in farming plans (e.g. choosing not to plant, spray, fertilise), or
- reduced yields.

During Drought Phase conditions become very dry and there is low soil moisture or plant growth. As Intense Drought Phase becomes apparent ground cover is low and soil moisture stores are exhausted, ongoing decisions are required to sustain the farming business such as:

- Economic decisions to reduce spending on investment items, to renegotiate loan arrangements, or to seek off farm income. Flow on effects spending cutbacks are felt in the local towns with less money being spent on agricultural supplies and reduced employment opportunities for farm workers. The 2008 report by the Australian Government highlighted the severe reduction in employment within the agriculture, forestry, and fishing industries due to ongoing drought, predicting a gradual recovery but also an unprecedented skills and labour shortage.
- Social decisions to reduce spending on discretionary items, to avoid social interactions and volunteer activities. The framework of Social Impact Assessment (SIA) identifies key areas affected by drought, including people's way of life, culture, community cohesion, political systems, environmental quality, health and wellbeing, personal and property rights, and fears and aspirations.
- Environmental sustainability decisions such as destocking to preserve groundcover, are brought forward as growth low for the time of the year. Maintaining fodder and water supply becomes a daily chore and thoughts turn to improving water access options.

The Recovering Phase is characterised by a sense of disbelief and uncertainty. Questions are raised as to whether the drought is over or there will be follow up rain to fill the soil profile and top up dams and rivers. Production is occurring but would be considered 'below average'. Full production recovery will not have occurred if this area has experienced drought conditions over the past six months. This recovery phase may take years given the need to scale up to full production and rebuild reserves such as stock on hand and financial reserves.

Understanding Drought Resilience in Northwest NSW

Drought cannot be prevented nor avoided in our Australian environment, only managed.

Effective Drought Resilience ensures maximising production, creating strong and cohesive communities and ensuring reliant and robust service delivery networks in good seasons, so there is a level of established preparedness when drought occurs.

Waiting to take action and implement strategies of resilience in the midst of a drought is not effective and reflects ineffective crisis management. Putting strategies in place to reduce the depth and severity of the trough will ensure greater sustainability in the long term.

Drought Management through Created Resilience

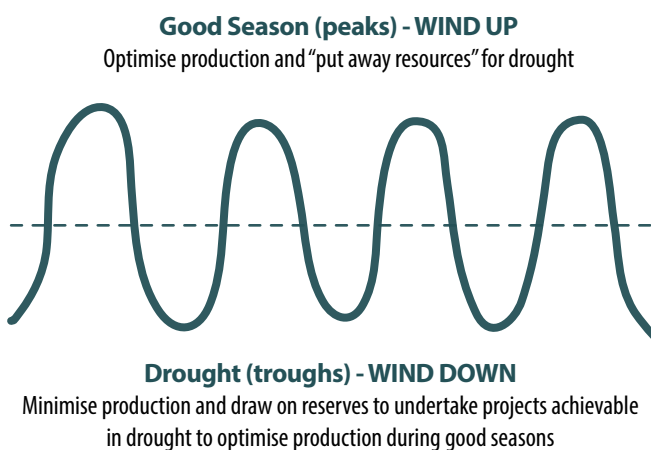


Figure 18 Drought management through created resilience

Drought Impacts on regional communities

In Coonamble, the economic stress induced by the 2017-19 drought was palpable, with families grappling with reduced incomes while continuing to meet financial and familial obligations. This scenario was compounded by visible signs of decline, such as empty shop fronts, which served as stark reminders of the town's dwindling business activity and population. Unemployment rates rose as businesses closed, further exacerbating the cycle of poverty.

Amidst these difficulties, the implementation of water access schemes, such as the Cap and Pipe the Bore Scheme, had alleviated some of the drought's immediate impacts and underscored the critical role of effective water management strategies in sustaining agricultural productivity and, by extension, community resilience.

Warren's struggle mirrored that of Coonamble, with the added complexity of water security being a significant concern. The community's heavy reliance on agriculture made it particularly vulnerable to the drought's impacts, leading to a decrease in population as people left in search of better opportunities elsewhere. Drought not only has environmental effects, but repercussions on the fragile economic and social fabric of North Western Communities.

The narrative from Nyngan added another layer to the understanding of drought impacts, emphasising environmental degradation and the psychological toll of enduring "dust storms". The lack of specialised services and the challenge of maintaining a stable population amidst declining natural and economic resources underscored the need for comprehensive support and planning.

Drought impacts on the Northwest Region

Quantitatively, the regional impact of drought was stark, with 80% of businesses reporting a negative impact on their cash flow. This economic strain was further illustrated by the agricultural sector, where 97.8% of businesses reported being affected by the drought. The downturn in business activity was mirrored by a reported average profit loss of 36% in the Far West and Orana Region, the highest across all New South Wales regions. This data underscored the extensive economic fallout from drought conditions, highlighting the urgent need for targeted support and interventions.

The resulting economic contraction was further exacerbated by volunteer fatigue, as the dwindling number of residents available to support community functions and emergency responses grew increasingly stretched.

The questioning of why droughts were not considered "natural disasters" reflected a broader call for policy recognition and support, highlighting the need for a more robust framework to address the complexities of drought management and assistance.

A concerning 18.7% of businesses admitted to feeling ill-equipped to mitigate risks associated with drought, highlighting a vulnerability to such climatic adversities. The longterm sustainability of businesses was a significant concern, with 59.6% worried about the enduring impacts of the

drought on their operations. In response to these challenging conditions, 85.5% of businesses were compelled to scale back on capital spending, deviating from earlier plans.

This comprehensive data paints a vivid picture of the economic devastation wrought by the drought on the Far West and Orana businesses, underlining the critical need for strategies aimed at resilience and recovery in the face of environmental challenges.

The overall reduction in staffing levels by an average of 1.5 employees among affected businesses spoke to the broader social impacts of drought, affecting employment opportunities and community cohesion. The fact that 69% of businesses considered themselves moderately well-prepared to mitigate drought risks, yet 63.5% reported that the impacts of the 2018 drought were more severe than previous droughts, pointed to an escalating challenge that required more than just preparedness—it demanded proactive and comprehensive management strategies.

The Drought Impact Survey 2020, completed by the Royal Far West, reflected on the experiences of 36 rural families in NSW, starkly illustrates the multifaceted toll of prolonged drought. It reports a nearly 50% rise in the number of individuals struggling with housing costs and a significant 40% of adults indicating poor or fair health, a figure that has doubled, exacerbating the financial and mental health strain on rural families. Lindsay Cane, CEO of Royal Far West, emphasised the compounded adverse effects of drought on the well-being of rural families, which are further intensified by concurrent crises such as bushfires and the COVID-19 pandemic.

The survey quantitatively highlights the escalation in financial stress, with more than a third of families facing challenges in affording food, over half unable to meet health costs, and a notable deterioration in the ability to pay for health services and dental care. Transportation affordability has also suffered, affecting half of the respondents. This financial hardship contributes to job losses, elevated living costs, strained relationships, and heightened mental health needs among families and communities. The expressed need for enhanced access to health services, including mental health counselling, underscores the critical necessity for targeted support and services in rural areas.

Future Drought Projections and Impacts

Overview

Assessment of the impact of drought and drought patterns observed during the Millennium Drought (2006 – 2010) and the recent drought (2017 – 2020) provide insights into potential future drought impacts.

The future impacts of drought in the Northwest Region of New South Wales are closely tied to the compound effects of various shocks and 'megatrends' that not only exacerbate the challenges posed by drought, but also present opportunities for action and improved resilience.

Climate projections and impacts

Factors such as climate change, with a predicted increase in temperature and variability in rainfall, have significant implications for the region.

Temperature Projections

Historical records indicate a warming trend, with average, maximum, and minimum temperatures rising. Specifically, the last 30 years have seen an increase in hot days and consecutive days above 38°C, reflecting broader trends of climate change impacting the regions. The following outlines the temperature projections for future periods in the Northwest Region:

Period	Increase
Near Future (2020 - 2039)	+0.7 °C to +1.5 °C
Far Future (2060 - 2079)	+1.8 °C to +2.7 °C

Figure 19: Temperature Projections (Source: CSIRO, 2024)

A map representation of the mean surface temperature projections for the Northwest Region Local Government areas of Bogan, Coonamble and Warren – 2030 to 2090 follows.¹²

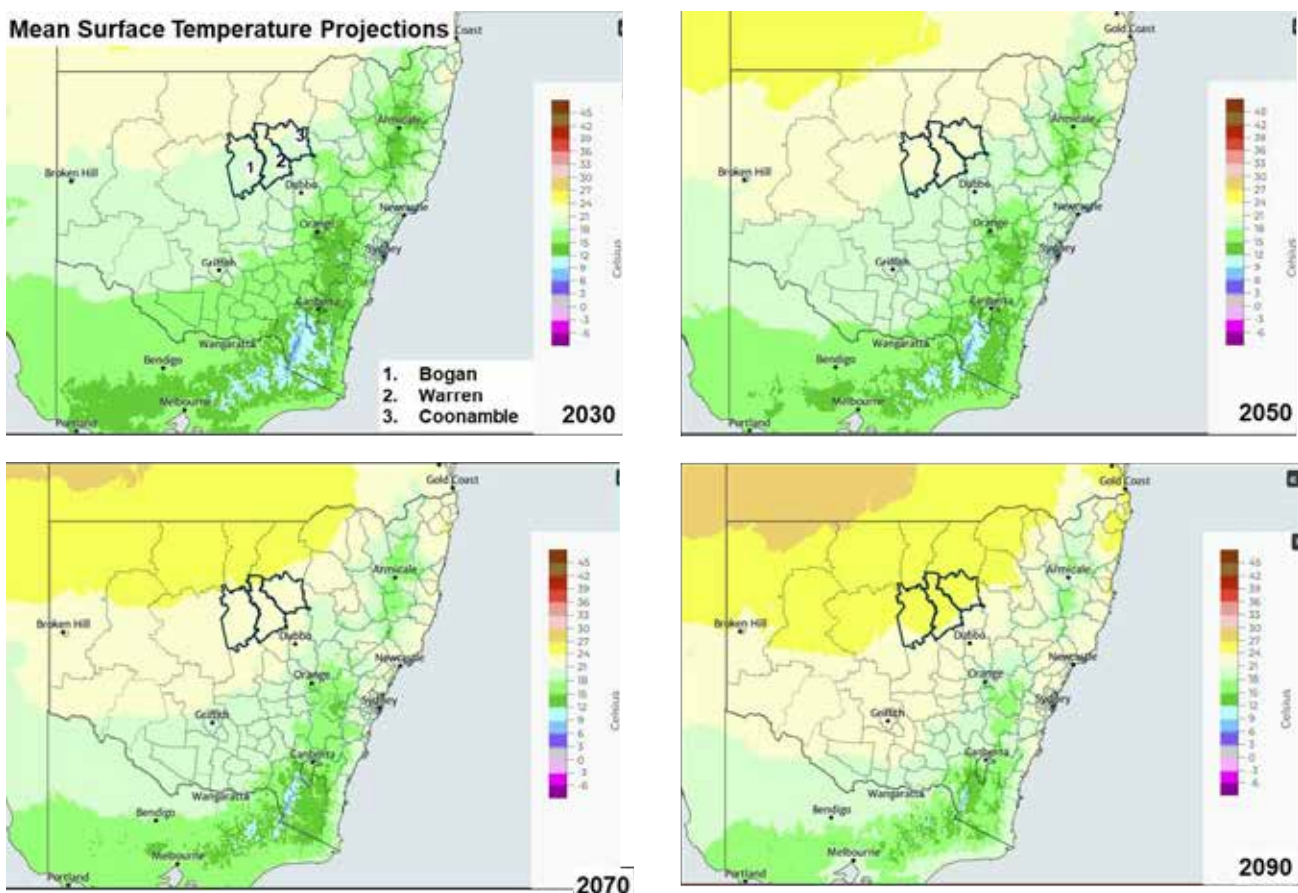


Figure 20 Mean Surface Temperature Projections (Source: CSIRO, 2024)

¹² <https://www.climatechangeinaustralia.gov.au/en/projections-tools/>

Rainfall Projections

The rainfall climate science projections and modelling scenarios for the Northwest are:

Factor	Projection
Rainfall Decrease	Up to 12% reduction in average annual rainfall by 2070.
Seasonal Shifts	Decrease in Spring rainfall, increase in Autumn rainfall.

Figure 21: Rainfall and evaporation Projections

A map representation of the climate science rainfall projections for the Northwest Region Local Government areas of Bogan, Coonamble and Warren – 2030 to 2090 follows.

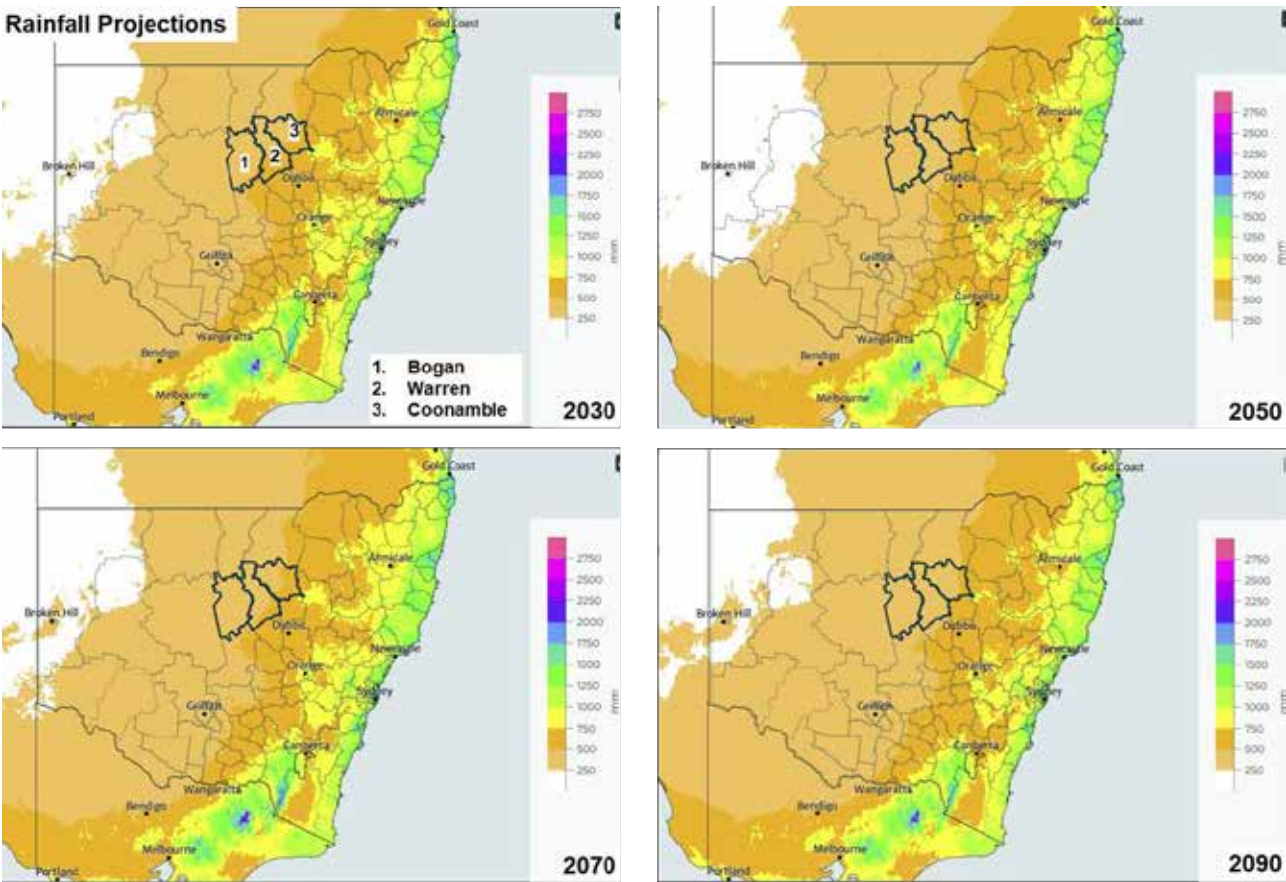


Figure 22: Rainfall projections. (Source: CSIRO, 2024)

The reduction in average rainfall will have significant impact for many farmers and landholders, particularly in crop varieties reliant on irrigated agricultural land. The data below represents the irrigation requirements per crop type (ABS, 2022)¹³.

¹³ Water Use on Australian Farms, ABS, 2022.

Crop	ML	Ha	ML/Ha
Rice	538,365	45,084	11.94
Cotton	1,326,321	197,401	6.72
Fruit and Nut (excluding grapes)	1,127,108	196,906	5.72
Sugar Cane	795,440	157,521	5.05
Grapevines	516,550	130,534	3.96
Vegetables	382,626	98,785	3.87
Pastures and Cereal for Hay and Silage	664,712	210,391	3.16
Pastures and Cereal for Grazing	1,429,495	495,779	2.88
Cereals Crops (excluding rice)	718,870	320,093	2.25

Figure 23 - Irrigation requirements by Crop Variety (Source: ABS, 2022)

Natural Water Resources

Significant quantities of irrigated cotton are grown in Warren and Bogan LGAs, with groundwater an important water source for this irrigation. Multiple large cotton gins are located within the region, including Queensland Cotton, Namoi Cotton and Auscott, all with facilities in Warren¹⁴. Broadacre irrigated crops, specifically cotton lint, were valued at \$54.6 M and \$33.7 M in Bogan and Warren respectively. Irrigated cotton covers a land area of 6,291 ha in the Bogan Shire, ranked 7 for land coverage in NSW¹⁵. In 2021 cotton growing accounted for 4.4% of jobs in Warren Shire.

Dryland cropping, wool and livestock (cattle, sheep, goats) production also contributes significantly to the economy across Bogan,

Warren and Coonamble LGAs. Production data is not readily available however in 2023 employment in agriculture represented 39.8% of the workforce in Warren shire, 26.5% in Coonamble shire, and 22.7% in Bogan shire.

A future scenario involving a reduction in the average annual rainfall will have significant impacts on the value of agricultural production in the region, with the likelihood of cotton gin increasing due to a lack of water resources to maintain production and operation.

Hot Days and Drought Frequency Projections

The projections for the frequency of hot days and drought conditions for the Northwest Region are:

Condition	Projection
Hot Days Increase	More hot days and consecutive days above 38°C.
Drought Severity	2 – 3% probability of severe droughts (similar conditions to 2017 – 2020).

Figure 24: Frequency of hot days and drought conditions

¹⁴ Agriculture Industry Snapshot for Planning – Central West Slopes and Plains Sub Region, Department of Primary Industries, 2020

¹⁵ AgTrack – Agricultural and Land Use Dashboard, NSW Government, 2020

The NSW Government's advanced climate data has unveiled the natural climatic variability extending beyond the observed records. This data suggests that the region has historically experienced more severe wet and dry periods

than recorded in the last 130 years.

Given the combination of changes in temperature and rainfall, the evapotranspiration 16 projections for 2030 to 2090 are:¹⁶

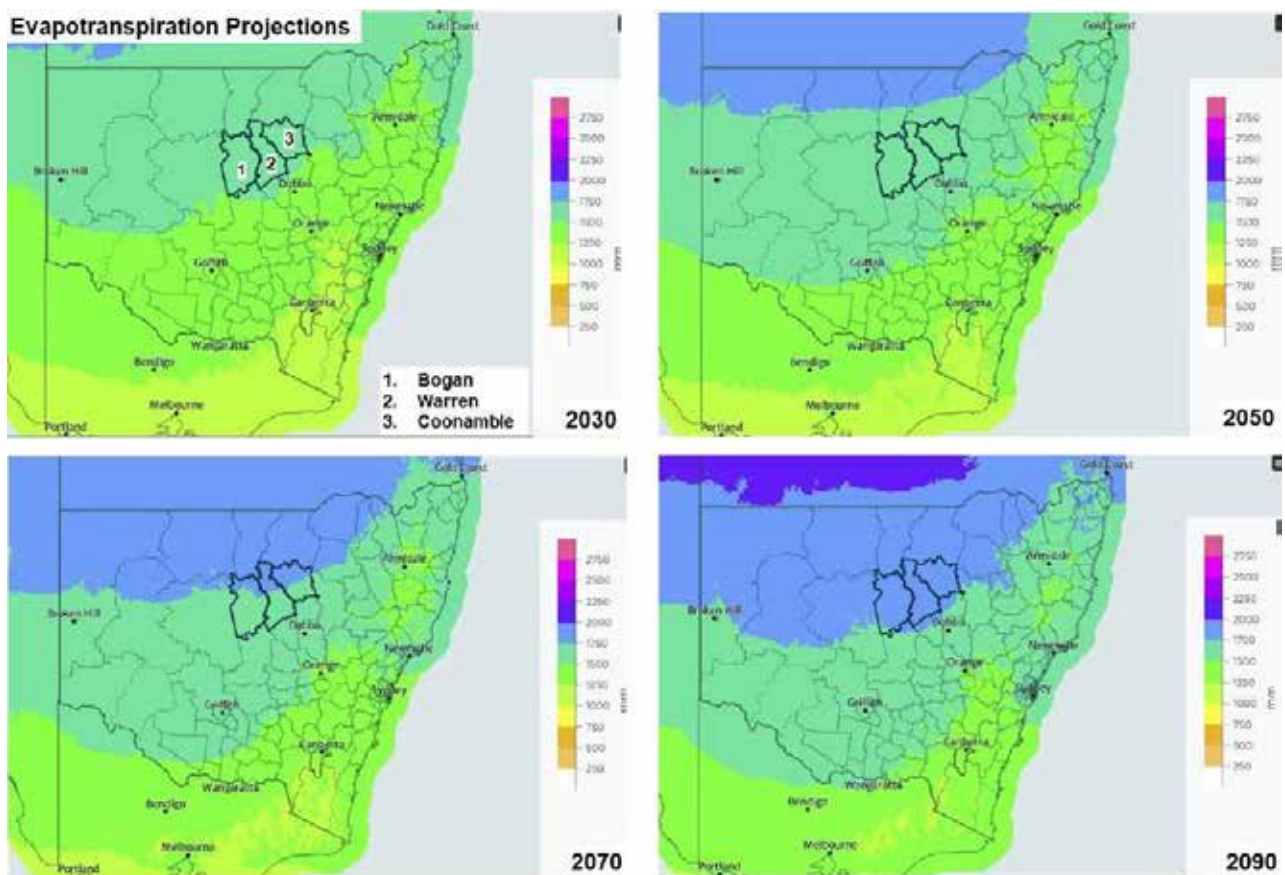


Figure 25: Evapotranspiration Projections (Source: CSIRO, 2024)

Prolonged drought conditions result in increased pressure on water resources, adversely affecting agricultural productivity and leading to a cyclical pattern of economic hardship and population decline.

Impact of Climate Projections on the Region and Project Priority

The future drought scenarios in the North West will significantly influence the delivery of key projects related to water security, telecommunications, community strengthening, and sustainable tourism. As temperatures rise and rainfall decreases, the prioritisation of water security projects such as the development of new bores and increased water storage will become paramount. However, the increased frequency and severity of droughts may stretch financial and logistical resources, potentially leading to delays and higher costs. These projects will likely become the top priority, but

securing the necessary funding and materials may be challenging as the region competes with other drought-affected areas. This increases the significance of forward planning and proactive implementation of water security infrastructure, to ensure that the region is prepared for future scenarios.

Telecommunications infrastructure improvements, essential for maintaining connectivity and supporting remote work and education, will become increasingly vital. However, these projects may face lower prioritisation compared to immediate water security needs. The scarcity of resources may necessitate phased implementation or scaling down of such projects, impacting the region's ability to stay connected and resilient.

The harsh climatic conditions may also deter visitors, as the region's natural attractions could suffer. The scarcity and restrictions on water also

¹⁶ <https://www.climatechangeinaustralia.gov.au/en/projections-tools/>

decrease accessibility to the region, with road maintenance delayed due to its reliance on water in the project delivery. However, simultaneously, the deprivation of tourism and sparsity of visitation and spending within the region, will have significant economic consequences for residents, due to many farmers and land-owners often recommended to diversify their income through farm stays, etc, that rely on visitation. As a result, the significant infrastructure and tourism promotion will be required to maintain visitation during these periods.

Population Impacts

The population rate in the Northwest region has declined from 2006 to 2021, with the most substantial declines occurring during drought periods (see the following Population and unemployment trends in the region between 2006 – 2021 graphic). In the Bogan, Coonamble, and Warren Shires, the overall population trends are characterised by a declining and aging demographic, particularly in agricultural sectors.

Drought exacerbates these trends, leading to increased migration to urban centres as younger residents seek more stable employment opportunities, better housing and access to childcare. This out-migration contributes to an aging population, workforce reductions, and challenges in maintaining economic stability and community services.

Future droughts are likely to intensify these population impacts and create further economic challenges. The aging population may lead to a further decline in the size and capability of the workforce, especially in agriculture, which is heavily dependent on physical labour. Continued

drought could accelerate population decline as residents, especially the younger demographic, seek more stable living conditions and employment opportunities elsewhere. This out-migration will have long-term implications for the region's demographic structure, reinforcing the trend to an aging population and a shrinking labour force, further constraining economic growth and community vitality.

This trend suggests that droughts are a critical factor driving population decline, likely due to the associated economic and environmental hardships. The ongoing challenge for these regions is to develop strategies that enhance liveability, drought resilience and economic diversity to mitigate the impact of future droughts on population trends.

Outmigration also undermines the confidence needed to invest in and revitalise shrinking communities. This lack of confidence stifles local entrepreneurship and discourages new businesses from setting up, further accelerating economic decline. Decisions to invest in the community are often driven by emotional rather than economic motivations, as residents strive to improve their 'home' and attract like-minded people.

"There are opportunities but its difficult to weight up the investment potential versus financial returns. There is not a lot of confidence to 'grow' small communities when they have been experiencing a 'shrinkage' of population, services and business growth over the past 20 years."

– Emily (Nyngan)

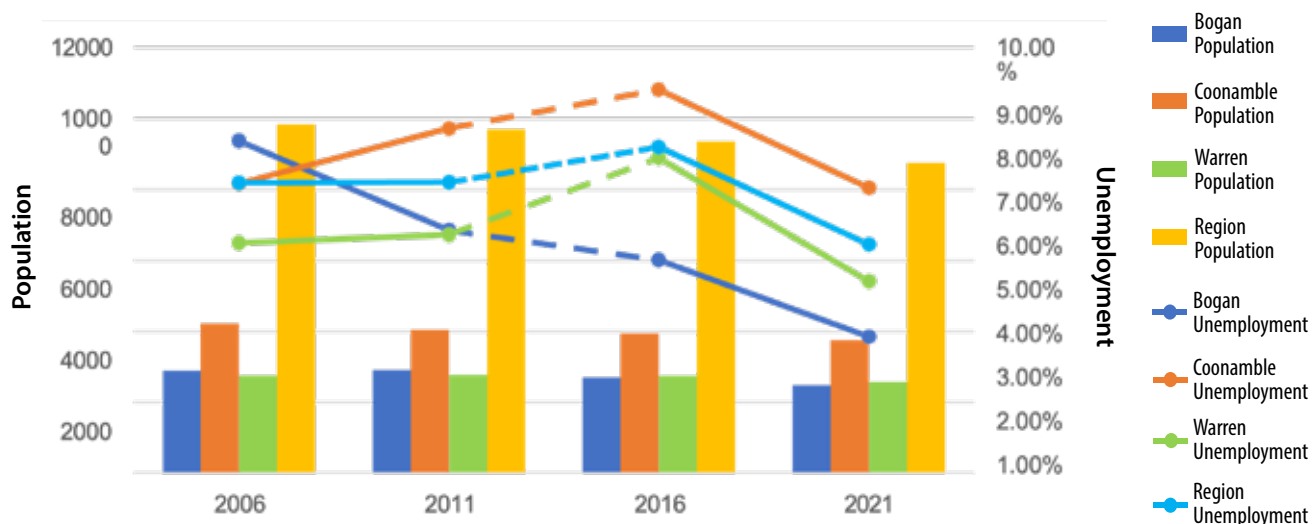


Figure 26 – Population and unemployment trends in the region between 2006 - 2021 (ABS).

Economic Impacts

Economic impacts of future droughts on employment complex and influenced by several factors including government policy and funding, structural changes in agriculture, economic diversification and resource management and sustainability.

• Economic impacts - Government Policy and funding

The economic resilience of the region during drought periods has historically depended on emergency relief efforts, government subsidies, and temporary employment packages.

While these measures can provide short-term relief, they are not sustainable options for long-term drought resilience and may not sustain long-term employment stability, with this impact likely exacerbated in future droughts, particularly because of tightened lending due to reduced national economic activity.

Farmers can now access low interest loans to help prepare for, manage and recover from drought through the:

- i. Regional Investment Corporation (RIC) Farm Investment Loan and RIC Drought Loan, to make the farm business stronger, more resilient and more profitable.
- ii. Drought Ready and Resilient Fund, a loan facility of up to \$250 000 can be used for products, activities and services relating to animal welfare, farm preparedness, income diversification, environmental improvements as well as training and business development.
- iii. Drought Infrastructure Fund (previously known as the Farm Innovation Fund) the loan product can be used for drought preparedness and mitigation by investing in permanent on-farm infrastructure that will:
 - **manage adverse seasonal conditions** - improve water efficiencies with irrigation systems, cap and piping of bores, new dams, install water tanks and desilting of ground tanks
 - **ensure long term sustainability** - increase the viability of a farm business and improve pasture and soil health, plant trees for shade and wildlife corridors, eradicate weeds, flood proof property and fence riverbanks.
 - **improve farm productivity** - reduce risks and improve efficiencies by building fodder and grain storage facilities, sheds, fencing, roadworks and solar power conversions.

These initiatives were designed to bolster the resilience of NSW farmers to future adverse weather events and climatic conditions, such as drought. The absence of low interest loans like these during subsequent droughts would limit a farmers' ability to adapt to drought conditions, to invest in necessary improvements or maintain operations. This could potentially lead to business closures and a significant reduction in the agricultural workforce.

The downside of low interest loans is that repayment of the loan is contingent on return to more profitable outcomes which may be delayed in an extended drought. Low interest loans in addition to any pre-existing loans will put added pressure on the farming business especially in times of rising interest rates and inflation.

A further drought would likely exacerbate economic vulnerabilities, leading to more significant reliance on external financial support and emergency relief measures. This dependency could strain regional and national resources, especially if drought conditions become more prolonged and severe due to climate change.

• Economic impacts - structural changes in agriculture

Evident in the Northwest Region, employment in the agricultural sector shows a more consistent decline over the entire period, with the most significant drops occurring between drought periods. This trend suggests that the sector's downturn is not solely due to drought conditions but also to broader structural changes within the industry, such as increased mechanization, increased use of external contractors versus local employees, shifts towards less labour-intensive farming practices, and farm consolidation. These changes are often aimed at increasing efficiency and reducing reliance on variable human labour, but they also lead to a reduced agricultural workforce over time.

This is a common trend in drought scenarios globally, where prolonged drought conditions catalyse farm consolidation and the adoption of farming practices that are less dependent on human labour, thus leading to a persistent decline in agricultural employment outside of active drought periods.

• Economic impacts – diversification

Employment in the administration and public services sector often increases during drought periods due to heightened demand for public assistance and the implementation of drought relief programs. These programs, typically

funded by government initiatives, aim to mitigate the immediate effects of drought on communities, leading to temporary job creation in local government and support services.

This rise in administration and public services roles may occur, but is more likely centralised in regional centres such as Dubbo. Many drought relief programs are delivered out of Dubbo or other regional centres and access to the service is online or by travelling to Dubbo or by drive-in drive-out service. Remote delivery of services to the Northwest Region adds little to the community and puts extra pressure on the strained resources of the Northwest Region, especially when travel to a regional centre to access a service is required.

Once these drought-specific programs conclude, employment in this sector declines substantially, reflecting the temporary nature of such interventions. The observed decline in employment between drought periods in administration and public services can be attributed to the cessation of temporary drought relief programs and a return to pre-drought

governmental operations.

This cycle indicates a reactive rather than proactive approach to drought management, where employment opportunities are directly tied to immediate drought response efforts rather than long-term resilience planning.

“Short-term government employment contracts don’t offer financial security for residents in small communities to “settle” and become a part of the community - they can’t buy a home, can’t plan for the future. This also has implications for alternate off-farm incomes.”

– Lee (Coonamble)

This pattern may not be sustainable in future droughts. While temporary employment opportunities might arise from relief efforts, these jobs are not a replacement for the lost permanent positions in agriculture and related industries. Over time, repeated droughts could lead to a permanent shift in the job market, with an increased number of short-term, low-security jobs, further destabilising the region’s economy.

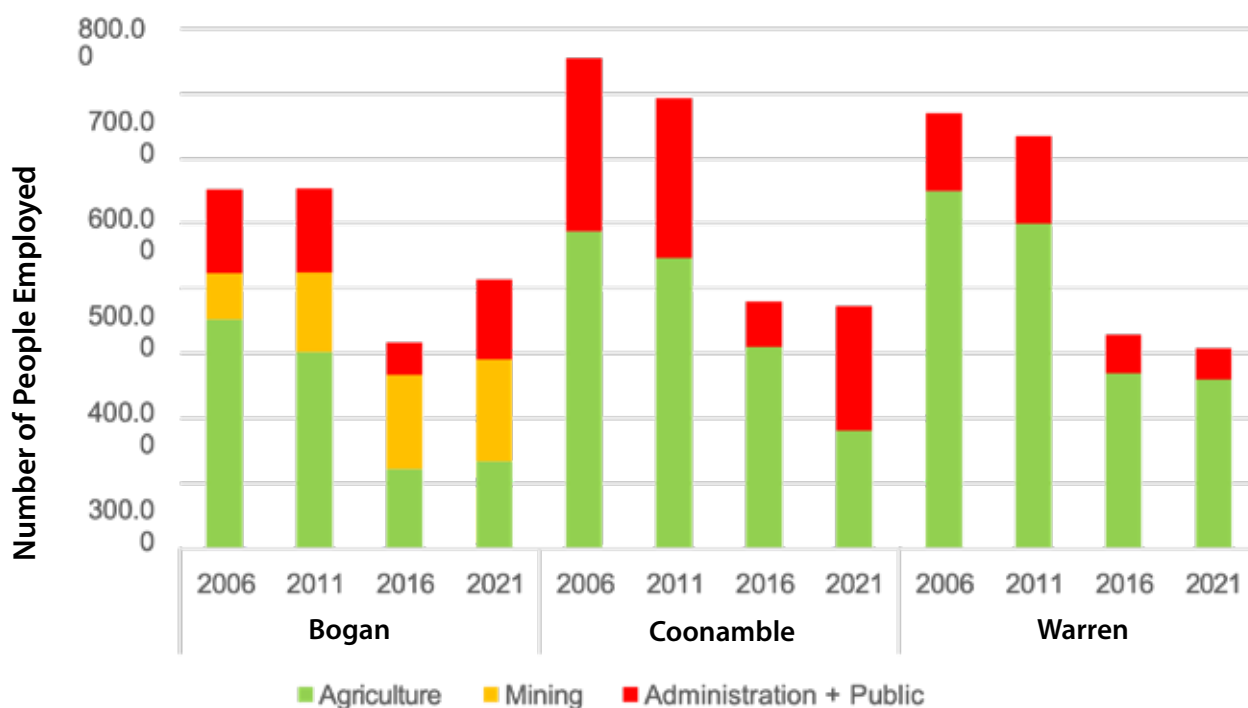


Figure 27 – Industry employment trends from 2006 - 2021 (ABS - Top 5 Industries).

A trend which started in the 2017-2020 drought and gained momentum during the Covid Pandemic was the rise in prominence of remote working and home-based business. Digital connectivity has enabled the people of Northwest Region to connect with education, business and customers like never before.

An off-farm income is an extremely valued defence for farming families against the boom-and-bust cycle of drought and recovery. For example, the incredibly successful “Buy from the Bush” social media campaign promoted regional businesses was launched from a kitchen table on a property near Warren. It

leveraged the enormous opportunity to connect city customers who really cared about the bush with over 250 bush retailers. It is estimated Buy from the Bush provided \$14 million in revenue to regional businesses during its operation.

Regions with economies heavily dependent on agriculture will face increased vulnerability from drought, requiring improvements in digital connectivity to facilitate training opportunities for business diversification and sustainable farming practices. Also, the future success of small businesses in the Northwest Region is contingent on access to a larger market.

Buy from the Bush founder Grace Brennan: "Often you get a very one- dimensional perspective, with rural issues only trending in times of crisis," she said.

"But we want to be able to provide a nuance beyond farmers in paddocks when times get tough ... we have this incredible untapped resource in the way rural Australia works to solve problems. For me, it's like a secret sauce. We need to mine in and leverage it."

Sydney morning Herald 10/09/2023

Expansion of digital connectivity is vital for economic and social participation, particularly for smaller centres where "off-farm" income is a significant strategy in drought preparedness and drought resilience.

• **Economic Impacts - resource management**

Efficient management of resources including human resources, reserves of fodder and water are directly linked to productivity and profitability. When a business is thriving, more money can be spent on resource management and confidence is high.

Conversely, droughts result in reduced capacity to earn an income and result in a rundown of reserves or resources. Not only reserves of pasture, fodder and water are depleted: human reserves of energy and confidence are also depleted giving rise to physical and mental health issues. As the Northwest Region relies on the goodwill of volunteers to run events such as school carnivals, sporting fixtures and agricultural shows, social activities are curtailed further compounding the issue. Suicide or mental illness deeply affects the community whose lives are deeply entwined through business or social activities.

Unemployment and loss of income not only

affects those directly involved in agriculture, but also ripples through the local economy, impacting sectors like retail, services, and manufacturing that rely on the spending power of these primary sector employees. The impacts on local business were exemplified in the most recent 2017 – 2020 drought, where the inability of non-primary producers to access subsidies resulted in significant business closures, many of which have not reopened since.

• **Economic impacts - employment**

The economic impacts of future droughts on employment in regions like Bogan, Coonamble, and Warren can be significant, affecting various sectors differently based on their reliance on natural resources and government interventions. The fluctuating employment trends in these regions, particularly in the administration, public services, and agriculture sectors, reflect the broader economic vulnerabilities and structural adjustments that occur in response to drought conditions.

During drought, the changes in agricultural employment are minimal, possibly due to the necessity to maintain operations despite reduced water availability and productivity. Government subsidies and support during these periods can help sustain agricultural employment temporarily, but they do not address the underlying trend of workforce reduction in the sector.

Following the 2017 - 2020 drought farmers have demonstrated a propensity to de-stock based on Bureau of Meteorology seasonal forecasts, thereby reducing the workload to feed stock and reducing constraints on their time possibly freeing up time to pursue an off-farm income.

Addressing these challenges will require integrated-long term strategies that enhance regional resilience to drought while supporting sustainable employment and economic growth.

The economic impacts of future droughts on employment in Bogan, Coonamble and Warren regions, will likely continue to reflect the complex interplay between temporary government interventions, structural changes in agriculture, and the need for greater economic diversification and sustainable resource management.

Social Impacts

The Drought Impact Survey 2020¹⁷ conducted

¹⁷ West, R. F. (2020). Cumulative effects of drought show sustained hardship – survey.

by Royal Far West on rural families in NSW paints (responses recorded by 36 rural families staying at Royal Far West in February and March of 2020) a distressing picture of the broad-reaching consequences of prolonged drought, which has severe implications for predicting the social impacts of future droughts.

The survey's findings on financial stress, where over a third of families struggled to afford food, and more than half faced difficulties meeting health costs, suggest a significant decline in living standards and access to basic needs. The deterioration in the ability to afford essential services like health and dental care, coupled with transportation challenges affected half of the respondents, reflecting the extensive economic strain and social isolation experienced by these communities.

Studies have shown that droughts exert long-term psychological and social effects, leading to increased rates of depression, anxiety, and other mental health disorders in affected populations. The loss of livelihoods, uncertainty about the future, and the degradation of the natural environment can lead to a sense of hopelessness and helplessness among community members.

Predicting the social impacts of future droughts based on these findings suggests a continuing and possibly worsening trend of financial hardship, health issues, and social disintegration in rural areas. The compounded stress of successive droughts and other overlapping crises can erode community resilience, weaken social bonds, and lead to a breakdown in social cohesion.

The expressed need for better access to health services, including mental health counselling, highlights the urgent requirement for comprehensive support systems that address the multifaceted challenges posed by drought.

Impacts on Indigenous Communities

The future drought impacts on Indigenous communities in the Bogan, Coonamble, and Warren regions, as evidenced during the 2017 - 2020 drought, are profound and multifaceted. These impacts go beyond the immediate environmental and economic effects, touching the very core of cultural identity and community well-being.

• Environmental impacts

The decline in native flora and fauna during drought, alongside the loss of breeding grounds for birds and fish, signifies a broader ecological

crisis affecting the entire ecosystem's health and sustainability.

The ongoing struggle for water rights and the impact of large-scale agricultural and mining operations, underscore the challenges of managing water resources in a way that respects both the environmental needs and the rights of Indigenous communities. The upstream water extraction for irrigation highlights a critical need for equitable water management policies that consider the cultural, ecological, and economic needs of all communities along these river systems.

• Economic impacts

The drought's economic impact on these communities, particularly those engaged in traditional land and water-based activities, is severe. With rivers drying up, activities like fishing, swimming, and hunting, which are not only cultural practices but also vital sources of sustenance and income, are no longer feasible.

Drought also reduces casual and seasonal employment opportunities such as harvest or planting operations.

• Cultural impacts

Water sources in these regions are not merely physical resources but hold cultural significance for Indigenous communities. They are places of cultural practices, storytelling, and spiritual solace. Severe drought leads to dry rivers and disappearing wetlands, disrupts cultural practices and connections that these communities have with their land and water.

The distress expressed by community members the Gamilaraay and Yuwalarraay elders and residents like Rhonda Ashby and Brenda McBride speaks to a profound sense of loss, not only of water but of culture, heritage, economic stability, and environmental health. The ongoing challenges faced by these communities call for urgent and inclusive water management strategies that recognise and integrate the cultural, spiritual, and ecological significance of water to Indigenous Australians.

• Community impacts

Their communities, which are deeply connected to the land and water for cultural practices, livelihood, and identity, will face increasing challenges as droughts become more frequent and severe.

Access to water is a critical concern, with drought conditions reducing river flows and water levels,

thereby affecting not only daily life but also the health of sacred and culturally significant sites such as the Macquarie Marshes. This situation threatens to disrupt traditional activities and cultural heritage.

Environmental Impacts

The diverse impacts of drought on ecosystems, as noted by Bond et al. (2008), underscore the multifaceted nature of drought effects on environmental and ecological systems.

The Murray Darling Basin has experienced significant ecological stress due to drought conditions, with notable events such as toxicity in the lakes in the lower Basin and large-scale mortality of floodplain forests. These incidents, driven by low river inflows and the absence of flooding, highlight the critical link between water flow and ecosystem health.

For the Northwest Region, the insights gained from studies and modelling of changing conditions within the Murray Darling Basin can be used to predict the impact of future droughts.

Prolonged and future droughts will likely have significant impacts on aquatic ecosystems, which are particularly vulnerable to reduced river flows and lower water levels in natural bodies. As a result, fish populations and other aquatic life forms may face decline due to the reduced availability of habitat and water quality issues.

Similarly, terrestrial ecosystems will suffer from decreased moisture availability, causing vegetation stress, higher mortality rates in plant species, and adverse effects on wildlife dependent on these habitats.

Soil erosion and land degradation are additional concerns during drought periods. The absence of vegetation cover can lead to increased erosion by wind and water, leading to the loss of fertile land, which is detrimental to agricultural productivity and natural ecosystems. Dust storms are a typical feature of extended drought in the Northwest Region.

Drought conditions also exacerbate climate change feedback loops. For example, stressed vegetation due to drought captures less carbon, and soil erosion can release the carbon stored in the soil, thus contributing to increased greenhouse gas emissions.

These interconnected impacts of drought highlight the need for strategies to mitigate environmental degradation and promote sustainability in Northwest NSW.

Unpredictable Factors that may Affect Future Drought Response

The Economic, Environmental and Social scenarios that may arise and affect responses to future Droughts are summarised as follows.

Future Scenario	Factors Contributing	Effects	References
Economic			
Economic Recession	Global market dynamics, changes in commodity prices, trade policies, economic policies.	• Reduced consumer spending and investment in the region, leading to business closures and higher unemployment. • Increased financial strain on local governments, limiting their ability to fund drought response and resilience projects. • Higher levels of poverty and reduced economic stability – inability for farmers to manage finance in 'non-drought periods' to prepare for drought.	NSW Business Chamber Drought Survey Warren Shire Economic Development Strategy and Action Plan
Policy and Governance Changes	Government decisions (local, state and federal), changes to funding allocation, changes in water management policies, regulatory adjustments, political shifts.	• Uncertainty in water allocations, complicating drought response efforts. • Change to funding priorities, effecting delivery of projects. • Delays in implementing drought resilience projects due to policy changes and variation in regulatory paperwork. • Inconsistent support and resources from government agencies.	Regional Water Strategy

Future Scenario	Factors Contributing	Effects	References
Technological Advancements	Pace of technological innovation, funding for research and development, acceptance by the community.	• Variability in the effectiveness of new technologies for drought management. • Dependence on government and community support for successful implementation. • Potential for increased disparities between those with access to new technologies and those without. • Change in network coverage type, and redundancy of existing on- farm and off-farm technological investments.	Regional Water Strategy Warren Shire Economic Development Strategy and Action Plan
Environmental			
Climate Variability	Climate change, variability in precipitation and temperature, changing atmospheric conditions.	• Difficulty in predicting weather patterns, complicating water usage and agricultural planning. • Increased frequency of extreme weather events, stressing infrastructure and resources. • Greater unpredictability in water availability, affecting long-term planning and investments.	Central West and Orana Climate Change Snapshot Western Enabling Regional Adaptation – Central West and Orana Report
Increased Fire Risk	Dry conditions, high temperatures, accumulation of dry vegetation, insufficient fire management resources.	• Widespread environmental damage and loss of property. • Significant resource allocation for firefighting and recovery, diverting resources from other drought response efforts. • Long-term degradation of natural habitats and ecosystems.	Central West and Orana Climate Change Snapshot Western Enabling Regional Adaptation – Central West and Orana Report
Social			
Health Crises e.g. Viral Outbreak	Predicted increase of global pandemics and epidemics, decreased response to viral antibodies and antibiotics e.g. antibiotic resistance.	• Strain on healthcare resources, increased incidences of heat stress, respiratory problems and mental health issues. • Outmigration to increase access to healthcare facilities on demand. • Increased costs for healthcare and social services. • Less mobile workforce and decreased resource capacity.	Central West and Orana Climate Change Snapshot Western Enabling Regional Adaptation – Central West and Orana Report Business Chamber Drought Survey
Outmigration	Mine closures, lack of employment opportunities, reduced agricultural viability, inadequate access to education and healthcare, and overall decline in economic prospects.	• Reduced labour force, impacting the local economy and capacity to deliver essential services and priority projects. • If amongst youth, increased demand for healthcare and social services, with a diminished workforce to support these services. • Social fragmentation and weakened community bonds due to reduced social support networks that are critical during crises. • Decreased availability of volunteers for essential community services.	Central West and Orana Climate Change Snapshot Regional Water Strategy Warren Shire Economic Development Strategy and Action Plan

Figure 28 – Summary of potential Economic, Environmental and Social scenarios

The analysis of the future drought projections and impacts, demonstrates the interconnected nature of the natural, economic and social environments.

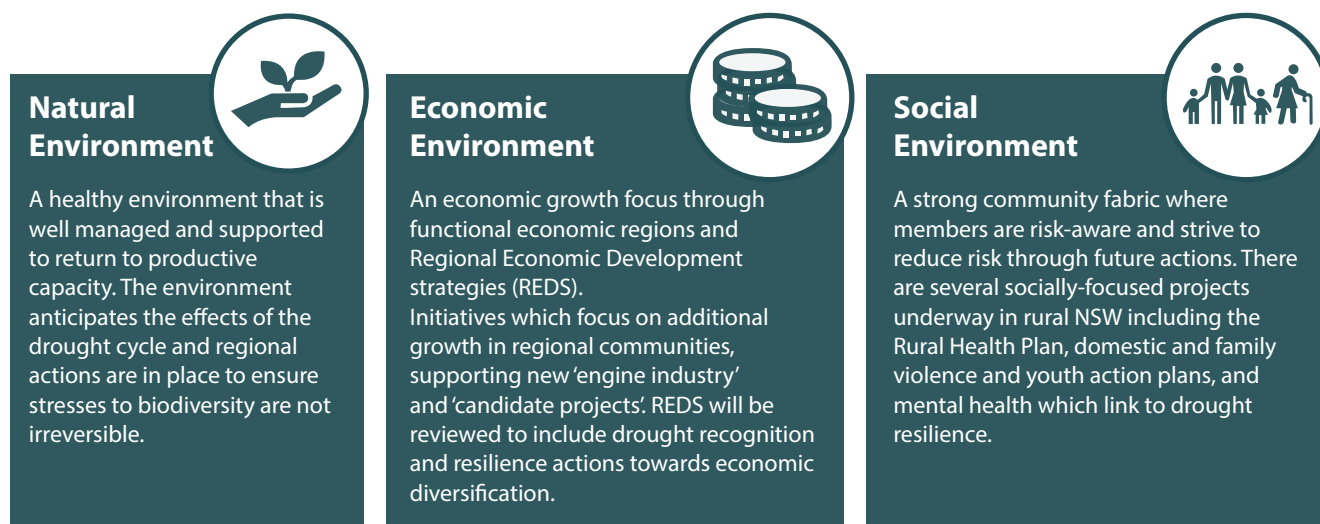


Figure 29 Viewing resilience as a system

The interconnected nature of those environments reinforces the requirement for initiatives and projects that contribute to improving the drought resilience of the region to be considered as a system, and not in isolation.

Our Drought Resilience Journey

The plan:

- o Recognises the proactivity of farmers and communities in regard to drought preparedness.
- o Highlights that further preparedness is required to continue to address the currently identified and future impacts of drought, and the associated climate trends.

Councils, community members, industry leaders and technical stakeholders have identified strategic initiatives and projects with corresponding actions for the Northwest Region which are required to improve the drought resilience of the region.

The projects and initiatives detailed were distilled from a 'long list of projects' arising from the initial stakeholder consultation processes.

The initiatives:

- o Form a pathway towards improving the resilience of the region to the impact of drought and its related stresses and shocks.
- o Contribute to maintaining, modifying and transforming existing systems and functions within the region.

It should also be considered that drought is dynamic in nature and there is no single point at which resilience of a region is attained. Therefore, it should be expected that as a project or an initiative progresses, further opportunities will

arise that might be pursued and incorporated into the plan to further improve the drought resilience of the region.

This plan incorporates a series of projects under four initiatives:

- **Long-Term Water Security Projects.**

The initiatives include Groundwater, off-stream storage, and water reuse projects.

- **Telecommunication security.**

The initiative is aimed at improving the telecommunications connectivity across the region.

- **Stronger Communities Program.**

The initiative is aimed at improving the community cohesion, well-being and financial resilience in region.

- **Sustainable Recreation & Tourism Strategy.**

The initiative is aimed at developing and implementing a tourism strategy across the region on a sustainable basis.

The project and initiatives in this Plan are aligned to the Key Outcome Areas to foster a more resilient, innovative and united region:

- People, Culture, and Community,
- Economy
- Landscape and Natural Environment
- Infrastructure and Built Environment

Project / Initiative	People, Culture, and Community	Economy	Landscape & Natural Environment	Infrastructure & Built Environment
	Enhance regional liveability, foster a robust and attractive community, and improve social resilience and wellbeing.	Expanding the business and agricultural sector's self-reliance and performance, ensuring stability and growth within the region's economy.	Improving the environmental resilience of the entire regional landscape, including agricultural lands and river systems.	Strengthening infrastructure to support economic and environmental sustainability.
Long-Term Water Security Projects	✓	✓	✓	✓
Telecommunication Security	✓	✓	✓	✓
Stronger Communities Program	✓	✓		
Sustainable Recreation & Tourism Strategy	✓	✓	✓	✓

Figure 30 – Alignment of Project / Initiatives by Outcome Area

As an outcome of future droughts, and implementation of drought resilience projects and the evaluation of the outcomes and impact over time, the plan across the four outcome areas will need to adapt, transform and change over time.

The plan for each initiative includes:

- A description of the initiative and project.
- Scope of the initiative and projects.
- Pathway to implementation.
- Analysis of how the initiative / projects supports 'Broader Drought Resilience.
- A Timeline for implementation.
- An economic analysis of the initiative.
- A governance structure to support the implementation of each initiative.
- An analysis of the responsiveness to potential future scenarios and uncertainties on the implementation and delivery of each project.
- An evaluation approach to the implementation, outcomes and impact of each project.

The program logic described in the following diagrams: v

- underpins the investment decisions for the initiatives, and
- reflects the linkage of the various components through the Plan responding to future uncertainty and change around:
 - Situation **(if)**.
 - Initiatives / Projects, Inputs and Planning, Outputs **(then)**.
 - Outcomes **(has the impact of)**.
 - Impact **(contributes to the vision of)**.

Situation

- Understand the specific water reliability issues by location and timing with reference to the groundwater resource.
- Understand the benefits of better planning. Understand the specific drought telecommunications needs.
- Ineffective telecommunication connectivity to support community health outcomes, business & on-farm productivity.
- Understand the benefits of better planning.
- Social cohesion & connectivity diminishes during periods of drought.
- Hesitancy in proactive decision making (livestock trading, decision making - based on facts and figures).
- Homogenised industrial economy and business vulnerability to climate change.

RDRP Drought Initiatives / Projects

1. Long Term Water Security Projects

2. Telecommunications Security

3. Stronger Communities Program

4. Sustainable Recreation & Tourism Strategy

Inputs & Planning

- Drought Resilience Technical Studies
- Groundwater Assessments
- Current Regional Water Plans
- Aquifer Assessments & Bore Monitoring Assessments
- Telecommunication Network Plans and Current Mobile Service Areas
- Communication Programs and Existing Telecommunication Proposals
- Detailed construction plans and costings
- Environmental Impact Study
- NSW and Local govt. Funding
- National Water Grid Funding
- National Drought Fund Funding

Outputs

1. Revised Technical Studies
2. Groundwater Borefield Testing
3. Development Plan for Groundwater
4. Off River Storage in Nyngan Region
5. Mobile Coverage and Topographical Survey
6. Revised Technical Studies
7. Farmer Assistance to Access Technical Studies
8. Events for Social Cohesion and Connectivity
9. Business Innovation Hubs for Developing Drought Resilience
10. Regional Tourism Strategy Including Agritourism & Tourism Products
11. Local Business Entrepreneurship Development in Agritourism

Outcomes

- Three new water bores.
- Improvement of quality and flow of groundwater resources.
- Installation of standpipes and connection to supervisory control system.
- Improved coordination and matching of water to needs.
- "Black Spot" investments for new towers.
- More accurate network and telecommunication coverage maps.
- Socially-focused drought resilience framework.
- Resources and workshops for improved financial resilience.
- Development of tourism route through regional towns.
- Support for agritourism and tourism-related business development.

Impact

Drought projects will enable

- Avoided emergency drinking water supply costs.
- Improved irrigation.
- Improved reliability of drinking water supply.
- Safety and health benefits from improved telecommunications.
- Reduced emergency response times.
- Enhanced social cohesion, community well-being and mental health.
- Reduction in business productivity / profitability losses during drought.
- Increased local spending and job creation.
- Enhanced infrastructure resilience.
- Improved environment stewardship and resilience against ecological challenges.

Figure 31 - Drought Resilience Program Logic Map at a Project Level (Bogan, Coonamble and Warren LGAs)
(The Stable Group, 2024)

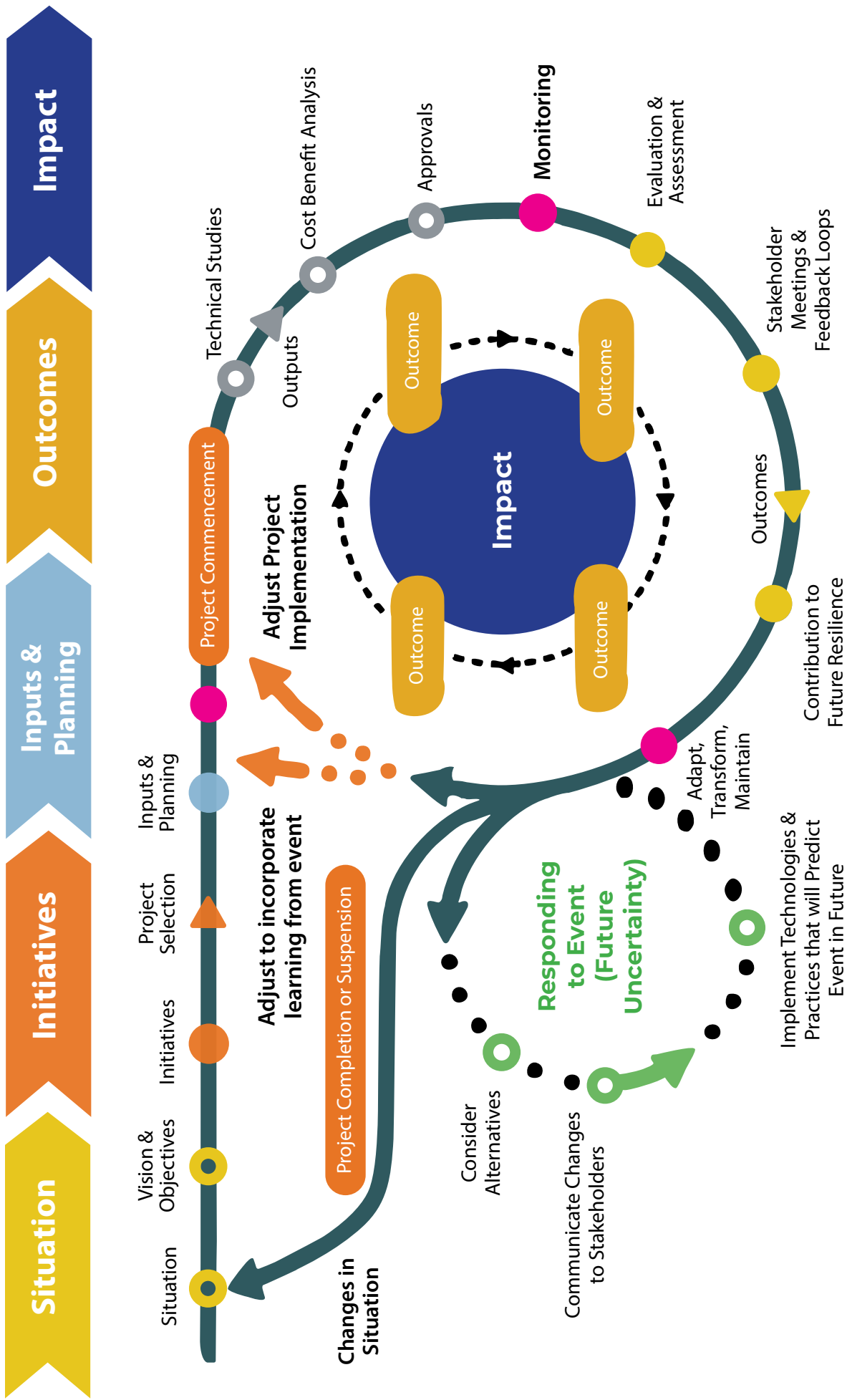


Figure 32 - Drought Resilience Program Responding to Future Uncertainty and Change (The Stable Group, 2024)

Long-Term Water Security Projects



Project Description

The shortlisted long-term projects to improve water security include the provision of:

- Groundwater bores.
- Nyngan water security project including access to boar water an associated pipeline.
- Increased dam storage capacity at Burrendong Dam.

Scope

Water Security Groundwater in Warren Shire Council – Proving of Groundwater Resources (Quality and Flow) and Installation of Standpipes

The proving of groundwater resources (quality and flow) and installation of standpipes (connected to a supervisory control system to provide a capability for standpipes to be switched on/off, to cross level usage between locations to adjust for changes in quality and flow rates) in up to five locations, to provide greater resilience for the agriculture and town water supplies of local towns.

Water Security – Off River in Warren Shire Council

Establishing an off-river storage (circa 3,000 ML) at or before the Nyngan off-take to secure the water supply to the Warren Shire (industry, environment, irrigators, domestic supply).

Water Security – Raise the capacity of Burrendong Dam

Increase the capacity of the dam by circa 20% to reduce the risk of water shortages to the region.

Pathway to implementation

The pathway to the delivery of the projects includes (as required):

1. Conduct of feasibility and technical / geotechnical investigation and studies to assess the viability, sustainability, and environmental impact of proposed water projects.
2. Survey and Detailed design.
3. Environmental assessments.
4. Detailed cost estimate.
5. Complete full business case.
6. Funding applications & regulatory approvals.
7. Tender for construction.

Supporting Broader Resilience

The water security projects will contribute to improving drought resilience of the Northwest Region through:

- Modifying the existing system for the provision of water for stock, domestic use and dust suppression for road maintenance/ construction activities, by increasing the number of water bores.
- Modifying the existing water storage capacity of the region, through inclusion of an additional off-river storage with 3,00 ML capacity to reduce water risks to the region.
- Transforming the existing water storage capacity by increasing the capacity of the Burrendong Dam.

The projects support the pillars of drought resilience through:

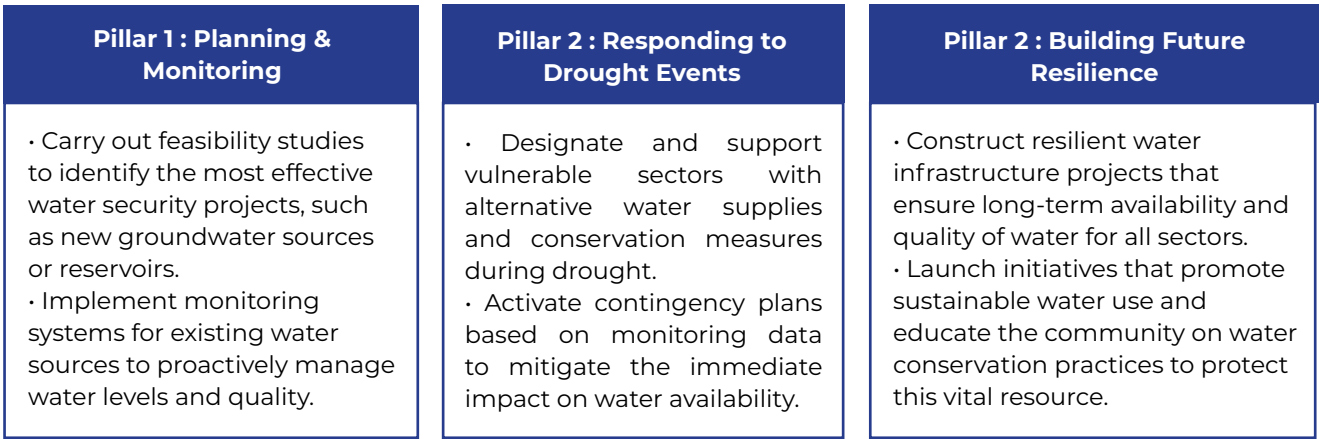


Figure 33 - Drought Resilience, Adaption and Management Model Pillars – Water Security Projects

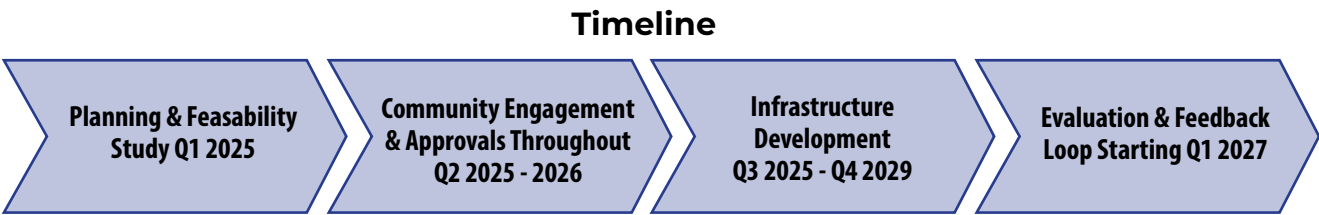


Figure 34 - Timeline – Water Security Projects

Economic Analysis

An economic analysis for the Water Security Projects follows. The analysis included identification of the Costs and Benefits of the projects, and the completion of a Cost Benefit Analysis.

This Cost Benefit Analysis methodology employed, was consistent with the real options methodology of the NSW Treasury Guidelines and remained within the cash flow framework of Treasury’s recommended rapid cost-benefit analysis technique.

Accordingly, the nature of the technique, is to assess benefits and costs at a high level, using readily available secondary data, but not undertaking primary research. Where primary research is lacking, the assessment proceeds by estimating through a decision tree the likely costs and benefits of each “known unknown” in the project logic and incorporating this assessment on a risk (probabilistic basis) in the analysis.

To deliver on this methodology economic data needs included:

- Available secondary data sources, including past assessments of proposals, or of related projects; and
- Rapid assessment, using those sources, of

the project logic as integrating within the plan logic.

Additional specific project-related data was also utilised:

- Water Security
 - Groundwater - assessments and water reliability studies for the region and its member Councils. This may include aquifer assessments, bore monitoring programs, or water supply assessments including groundwater. Key data sources were the respective Councils and the NSW State planning bodies (Regional Water Plans).
- Water Security Planning
 - Existing water planning for the wider region, including Western Regional Water Strategy, and identifying from Councils. The key sources were existing water plans.

The options considered for the economic analysis comprised:

- **Base Case** – Planning Without Projects. It is assumed for the sake of clarity, that considering a program with up to three projects will incorporate a base level of expenditure on water security planning. The analysis is focused on the water planning net benefit estimates on projects that might develop from that planning.

- **Option 1** – Water Security: Groundwater – Monitoring of existing ground water sources and if required investigation and development of additional bore fields in the region if required.
- **Option 2** – Water Security – Additional off-river storage in the region.

The option of raising the capacity of Burrendong Dam by 20% was not included in the economic analysis. A full cost benefit analysis will be required as part of a business case for the project.

Costs

	Capital Cost per Unit Capacity (\$/ML)	Benchmark (Location)	Capacity (ML)	Cost (\$)	Notes
Offstream Storage	\$37,000	Walcha (Apsley)	300	\$11,000,000	
Offstream Storage	\$43,000	Tuross River Study	3,000	\$130,000,000	Cost was revised as part of a variation

Figure 35 Capital Cost Benchmarks

Benefits

The impact charts illustrate the likely benefits of the major options:

- Groundwater
 - Avoided emergency drinking water supply costs – typically valued in the literature at above \$7 per kL; and
 - Irrigation benefits – typically valued at crop gross margins of \$3 per ML.

- Water planning
 - Improved reliability of drinking water supply from better matching of storage and transmission. Values in terms of emergency supply costs avoided at \$7 per kL.

In this section, these benefits are broken down in more detail for input to the cash flow analysis. It's important to first set down that many of the benefits are driven by the town, regional or state population.

The following table, adapted from the main reports, sets the key values for this region:

	Bourke	Brewarrina	Cobar	Walgett	Bogan	Coonamble	Warren
Population	2,340	1,356	4,059	5,253	2,467	3,732	2,550
Projected Population (2041)	1,556	931	2,555	3,732	1,581	2,965	1,755
Drought water consumption (kL pa 2023)	101,739	40,478	176,478	228,391	68,739	162,261	110,870

	Bourke	Brewarrina	Cobar	Walgett	Bogan	Coonamble	Warren
Drought water consumption (kL pa 2041)	67,652	58,957	111,087	162,261	107,261	128,913	76,304
Household water consumption (kL per household pa)	597	400	203	300	314	165	231
Portable water consumption (kL per household pa*)	100	100	100	100	100	100	100

Figure 36 Population and Water Demand. Source: NSW Department of Planning Population Projections & NSW Department of Local Government Water Supply Statistics. *Estimated using urban individual use metering studies.

Groundwater

Groundwater is a significant variable in managing water security in the councils in this plan. Groundwater is used in town water supplies to ensure volume in droughts by providing supplementary water when, for example, regulated releases cease from upstream storages during drought, or surface water quality declines with reduced flows in dry periods.

Borefields are described as one of the key system assets in delivering Water Security as: Groundwater accessed through borefields supplements surface water sources, particularly during periods of drought. The use of borefields requires careful management to prevent over-extraction, which can lead to declining water levels and quality.

Water Planning

The benefits of water planning include improved reliability of the drinking water supply through better matching of storage and transmission, with values in terms of emergency supply costs avoided estimated at \$7 per kilolitre.

Cost Benefit Analysis

The outcomes of the Cost Benefit Analysis, including a sensitivity analysis for each Water Security Option follows.

Results

The following tables show the results after costs are netted off from benefits.

Option	NPV	BCR	NPV Rank out of 2	BCR Rank out of 2
Base Case: Planning without projects	-\$170,915		-	-
Option 1: Water security: Groundwater	\$550,791	2.144	2	2
Option 2: Water security: Off river storage Nyngan	\$128,719,996	2.350	1	1

Figure 35 Capital Cost Benchmarks. Source: Analysis using NSW Treasury Rapid BCA Model

Options 1 and 2 have benefit cost ratios greater than 1 at 5% discount rate.

Sensitivity and Distributional Analysis

All options have positive Net Present Values at all discount rates considered.

Sensitivity	3% Discount Rate		7% Discount Rate		10% Discount Rate	
Option	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-\$170,729		-\$170,912		-\$170,632	0.106
Option 1	\$571,433	2.083	\$530,831	2.203	\$502,352	2.285
Option 2	\$210,584,491	2.959	\$75,745,210	1.891	\$28,613,666	1.397

Figure 38 Sensitivity Testing - Discount Rate

The results are insensitive to cost and benefit variance up to +/- 20%.

	Costs +20%		Costs -20%		Benefits +20%		Benefits -20%	
Option	NPV	BCR	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-\$209,962		-\$131,867		-\$166,050		-\$175,779	
Option 1	\$454,514	1.787	\$647,069	2.680	\$757,227	2.573	\$344,355	1.715
Option 2	\$109,643,314	1.958	\$147,796,678	2.937	\$173,540,677	2.819	\$83,899,315	1.880

Figure 39 Sensitivity to Cost and Benefit Variance

All options have positive Net Present Values for both Low case scenarios and High case scenarios.

Scenario	Low Case Scenario		High Case Scenario	
Option	NPV	BCR	NPV	BCR
Base Case	-\$214,827		-\$127,002	
Option 1	\$248,078	1.429	\$853,505	3.216
Option 2	\$64,822,633	1.566	\$192,617,358	3.524

Figure 40 Sensitivity to Negatively Correlated Benefit/Cost Variance

Governance Structure

The 'owner' of the initiative, and therefore the Chair of the Steering Committee for each project within the initiative will be at the discretion of the Far Northwest Joint Organisation and the respective Councils within the region.

Governance Structure for the project would comprise the following:

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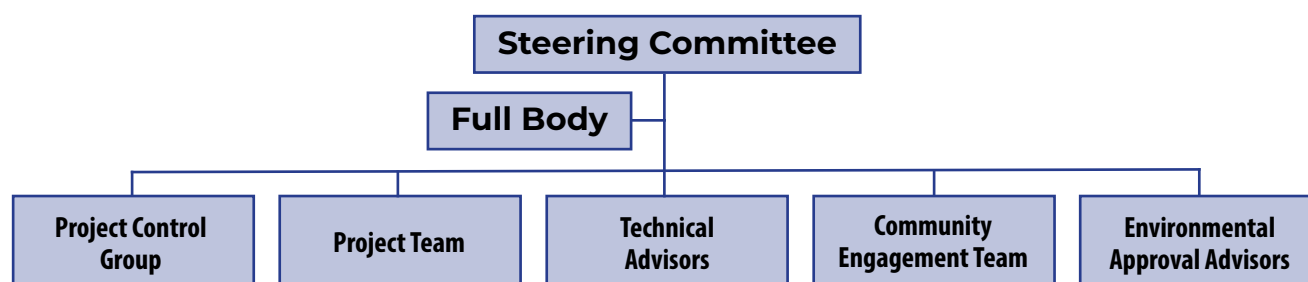


Figure 54 – Governance Structure – Telecommunications Security Projects

- **Steering Committee:** responsible for strategic direction, oversight, decision-making, and ensuring that the project aligns with the Regional Water Strategies. It could include representatives from the key stakeholders such as:

- Department of Climate Change, Energy, the Environment, and Water (DCCEEW) – Water.
- Water NSW.
- Agriculture NSW.
- NSW Farmers Association
- Representatives of identified agriculture industries.
- Mayors and Council representatives

- **Funding Body:** Representatives from the funding body such as

- Future Drought Fund
- Australian Government National Water Grid
- NSW Government Representatives from DCCEEW - Water

- **Project Control Group (PCG):** Responsible for monitoring progress, managing project risks, making decisions about day-to-day operational issues, and ensuring the project stays on schedule and within budget.

- **Project Team:** Comprising of Project Manager, Technical Team Members and Administrative Support.

- **Technical Advisors:** Experts in water management, agriculture, environmental science, and community engagement, would provide technical advice to feasibility studies.

- **Community Engagement Team:** Manage stakeholder communications and engagement activities.

- **Environmental Approval Advisors:** Oversee all environmental assessments, ensure compliance with regulations, and manage the environmental impact studies and development approvals process.

A proposed adaptive framework for monitoring and updating the project / initiative follows.

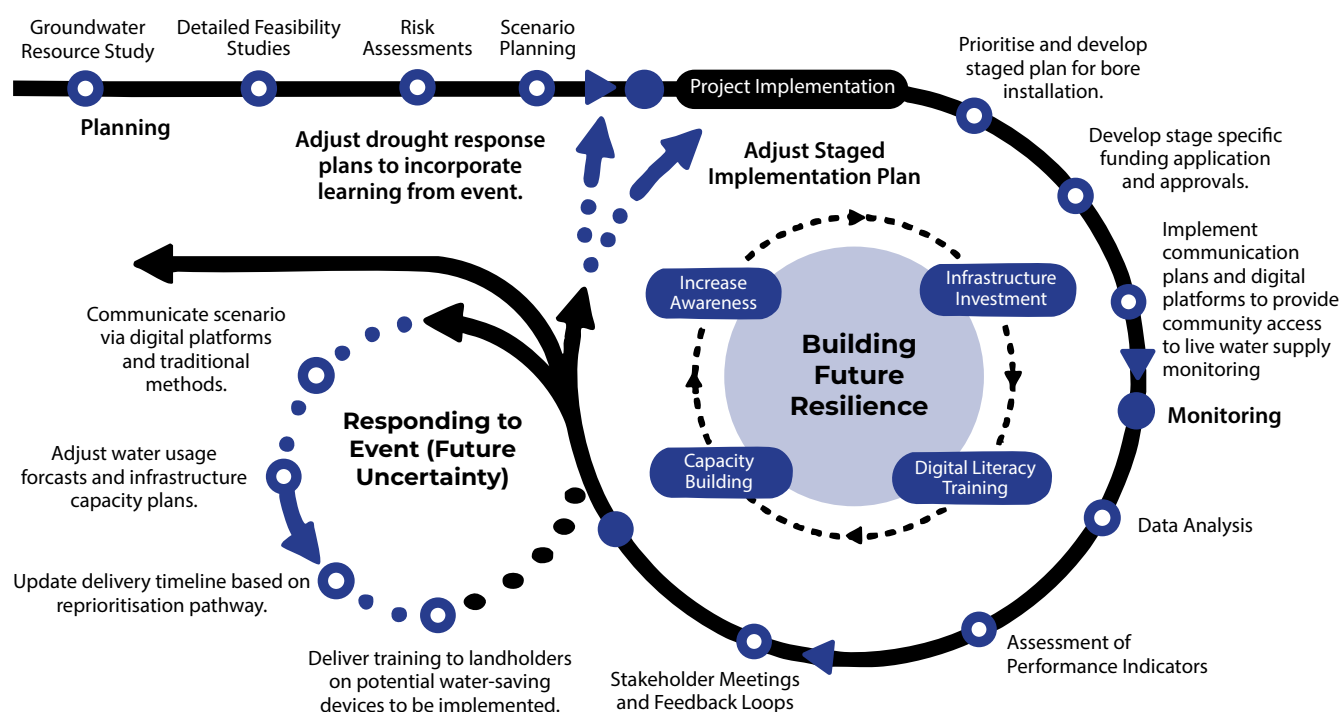


Figure 42: Framework for monitoring and updating the Long Term Water Security Project delivery (TSG 2024).

Responsiveness to Future Scenarios and Uncertainties

An analysis of the impact of potential future scenarios and uncertainties on the implementation and delivery of each project follows.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Economic Recession	• Decreased funding availability for water security projects. • Lower community and stakeholder support due to economic hardships. • Reduced ability to invest in advanced water management technologies. • Altered water usage patterns, particularly for industry and manufacturing e.g. road construction.	• Seek additional funding from state or federal grants. • Adjust project scope to align with reduced budgets, prioritising essential components like groundwater proving and standpipe installations. • Focus on cost-effective solutions and prioritise critical infrastructure upgrades. • Implement flexible pricing models to maintain water service affordability. • Complete a more detailed cost-benefit analysis to identify the most economically viable project.
Policy & Governance Changes	• Uncertainty in water management policies, affecting project planning and implementation. • Delays in approvals and funding due to regulatory changes. • Delays or modification to project delivery timeframe due to different project prioritisation. • Change in Federal budget affects funding allocation to water projects. • Inconsistent support for long-term water security initiatives. • Potential changes in water allocation and usage regulations affecting project feasibility.	• Increased advocacy and engagement with policymakers to ensure supportive policies. • Flexibility in project timelines and milestones to accommodate policy changes. • Regular monitoring of policy developments and proactive adjustments to project plans. • Establish a project advisory group to guide the project and navigate regulatory changes. • Develop adaptable project frameworks to comply with evolving regulations, including possible modifications to groundwater extraction and off-river storage strategies.
Technological Advancements	• Variability in the adoption and effectiveness of new water management technologies. • Potential disparities in access to technology among community members. • Changes in water usage efficiency due to technological improvements and water saving device implementation.	• Allocate budget for training and capacity building in new technologies/ • Incorporate the latest technologies for water management and monitoring systems, e.g. advanced groundwater sensors and automated control systems for standpipes. • Collaborate with technology providers and researchers to stay updated on advancements. • Ensure equitable access to new technologies by providing support and resources for all community members. • Adjust long-term water usage forecasts based on expected efficiency gains from new technologies.
Climate Variability	• Increased strain on water resources due to more frequent and severe droughts. • Potential damage to water infrastructure from extreme weather events. • Increased variability in water supply, complicating planning, management and delivery. • Altered precipitation patterns impacting groundwater recharge and surface water availability.	• Increased budget for climate-resilient infrastructure and repair contingencies. • Contingency planning for extreme weather events, include rapid response protocols. • Incorporate infrastructure designed to withstand extreme weather conditions, such as reinforced storage facilities and resilient bore installations. • Regular monitoring and adaptive management to address changing conditions. • Implement advanced water management technologies to monitor and respond to variable water availability, such as automated standpipes and remote monitoring systems.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Increased Fire Risk	• Damage to water infrastructure and storage facilities, reducing water availability. • Significant resources diverted to firefighting and recovery, affecting project funding. • Long-term degradation of water quality and water supply infrastructure. • Increased demand for water for firefighting, impacting overall availability.	• Design and implement fire-resistant infrastructure, including fire-resistant bore casings and storage facility materials. • Increased budget for fire management and recovery efforts. • Development of emergency response plans specific to fire risks, ensuring rapid deployment of water resources for firefighting. • Potential delays and increased costs due to fire-related disruptions. • Implement water storage and distribution systems capable of supporting firefighting efforts, such as strategically located standpipes.
Health Crises	• Reduced community engagement and participation in water conservation and management programs. • Increased strain on local healthcare systems impacting project staff and community well-being. • Higher costs for ensuring health and safety standards in project implementation. • Potential shifts in water usage patterns due to increased hygiene and health needs.	• Inclusion of health and wellness components in the project to address community needs. • Collaboration with healthcare providers to integrate services into project plans. • Allocation of additional resources for health-related infrastructure and programs. • Flexibility in project timelines to accommodate health crises and ensure community well-being. • Implement strict health and safety protocols for project activities and adjust water usage forecasts accordingly, ensuring adequate supply for hygiene needs.
Outmigration	• Reduced local workforce available for construction and maintenance of water infrastructure. • Decreased community engagement in water conservation programs. • Lower local economic activity, affecting funding and support for the projects. • Reduced water demand, altering usage patterns and affecting long-term water planning. • Potentially fewer bores needed if population declines significantly. • Variation to prioritisation of bore implementation due to change in specific region water demand.	• Extend project timelines due to reduced workforce availability. • Increased costs for attracting and retaining skilled workers. • Implementation of community outreach programs to maintain engagement and participation. • Adjust water usage forecasts and infrastructure capacity plans based on changing population trends. • Reassess the number of bores and off-river storage facilities needed based on population changes. • Develop partnerships with regional organisations to support workforce needs.

Figure 43: Analysis of the impact of potential future scenarios and uncertainties

Monitoring, Evaluation and Learning - Pillar Implementation

Success measures and indicators that might be used by the Project Steering / Control Group for the project to measure the extent of progress towards the outcomes expressed in the program logic and delivery of the project follow.

Pillar 1: Planning and Monitoring

- Risk Assessments and Scenario Planning:
 - Conduct detailed risk assessments to identify potential impacts on water security projects, including economic, social and environmental factors.

- Develop scenarios for various shocks, including climate events and economic shifts, to anticipate challenges and plan responses.
- Advanced Data Analytics:
 - Use geographical information systems (GIS) to monitor environmental conditions water resource availability, particularly focusing on groundwater levels and surface water storage.
 - Analyse data to assess the impact of climate variability on water infrastructure and supply.
- Regular Stakeholder Meetings and Feedback Loops:

- Engage local businesses, community members, and government agencies in regular consultations.
- Incorporate stakeholder feedback to adapt plans and improve project outcomes.
- Performance Indicators:
 - Establish KPIs to track the success of water security initiatives and infrastructure resilience.
 - Use real-time monitoring to adjust strategies as needed.

Pillar 2 : Responding to Drought Events

- Drought Response Plans:
 - Develop clear actions and responsibilities for managing water resources during droughts, including the prioritisation of bore drilling and off-river storage utilisation.
 - Ensure plans include maintaining water supply and supporting agricultural needs.
- Water-Efficient Technologies and Practices:
 - Install advanced water-saving technologies in infrastructure projects, such as automated standpipes and efficient irrigation systems.
 - Use drought-tolerant landscaping and irrigation systems to maintain green spaces with minimal water use.
- Alternative Community Activities:
 - Promote the use of alternative water sources such as recycled water and desalination where possible.
 - Enhance groundwater extraction and management to supplement surface water supplies.
- Emergency Communication Strategies:
 - Implement communication plans and digital platforms to keep community members informed about drought conditions, water usage, infrastructure status and water availability.

Pillar 3 : Building Future Resilience

- Climate Resilient Infrastructure:
 - Invest in flexible, adaptive water infrastructure that can operate under different environmental conditions, such as reinforced bore casings.
 - Incorporate sustainable design principles to enhance durability and reduce environmental impact.
- Economic Diversification:

- Support local businesses in adopting water-efficiencies to reduce their economic vulnerability.
- Community Education and Capacity Building:
 - Provide training for local residents on water conservation and management practices, particularly focusing on the use of new technologies, water saving devices and water efficient systems.
 - Promote awareness of water resilience and the importance of robust water infrastructure.

Monitoring Against Objectives

The applicable objectives of the Future Drought Fund Agreement, and relevant project level indicators to track outcomes and how the project is contributing to drought resilience outcomes follow.

Objective 1: Develop the environmental resilience and natural capital of agricultural landscapes.

- Number of new water bores drilled and operational.
- Improvement in groundwater quality metrics (e.g. purity, chemical composition).
- Number of people with access to groundwater supply.
- Reduction in water wastage through effective use of standpipes and supervisory control systems.
- Volume of water distributed through standpipes for agricultural and domestic use.
- Increase in agricultural output (e.g. crop yields and livestock health) due to improved water availability. Drought-on-drought improvement in value of agricultural products.

Objective 2: Understand and plan for the region's current and future drought resilience by identifying actions, pathways, and opportunities for mitigation, adaptation and improvement.

- Number of water infrastructure projects initiated based on these outcomes.
- Increased time before surface water storage diminished (drought-on-drought comparison).
- Reduction in the number of days with water supply shortages during drought periods.

Telecommunications Security



Project Description

Improve the 4G and 5G telecommunications infrastructure in the rural region, thereby supporting the operational continuity of local businesses, community and agricultural activities and improving the community's confidence in their economic stability.

The initiative arises from significant challenges currently faced by the region, where existing telecommunications infrastructure fails to meet the growing demands for digital connectivity and is vulnerable to disruptions caused by natural disasters.

With the termination of 3G connectivity within the region, the effect to be achieved is:

- Maintain the sustainability of local businesses, tourism and agricultural operations.
- Address the impact of the Agtech devices, applications and software within the agricultural sector that will no longer be operational.

"...The disjointed connectivity across Western NSW. The latest technology, from remote sensing for anything from a farm dam through to a major irrigation project, all revolves around the next network generation, either 3G that is leaving, 4G that will be here for a while, or 5G. The redundancy of prior networks e.g. 3G, has significant effects of the compatibility and operation of existing on-farm and off-farm investments that required significant investment from landowners. The connectivity across Nyngan, Bogan and Warren Shire is hopeless and that limits agriculture and makes things harder to do in a good time, but in a hard time it is just impossible."

~ Eleanor Faulkner

The following figure demonstrates the potential network coverage that could result from adoption and implementation by the Warren Shire Council within their LGA.

Coonamble and Bogan Shire also have identified telecommunications gaps and a similar project scope of works to address telecommunications security projects across the region could easily be supported.



Figure 44: Network coverage (yellow region), if adopted by Warren LGA.

The level of coverage would be dependent on the number of solar powered stations installed, which would be further scoped through a detailed business case and model.

Scope

The scope of the telecommunications security project includes:

- Conduct of telecommunications assessments, feasibility and technical studies.
- Identification of partner telecommunications providers.
- Development of a telecommunications plan to address gaps within the telecommunications strategy.
- Upgrade of existing and installation new telecommunications infrastructure to extend and enhance 4G and 5G coverage throughout the region.
- Installation of solar powered stations and roof antennas, that will facilitate signal transmission from the station to your home through a fixed wireless, point-to-point network.
- Installation and integration of a low-power, long-range data service alongside the wireless internet service to enable communication between on-farm devices and the internet.
- Establishment of an 'Agtech' replacement program.

Pathway to implementation

The pathway to the delivery of the initiative includes:

1. Conducting telecommunications assessments, feasibility and technical studies.
2. Identifying partner telecommunications providers.
3. Development of a telecommunications plan to address identified shortfalls in the telecommunications strategy.
4. Environmental assessments.
5. Detailed cost estimate.
6. Complete full business case.
7. Funding applications / arrangements and regulatory approvals.
8. Tender (as required) for construction of new and upgrade of existing infrastructure.
9. Establishment of the 'agtech' and solar programs (including associated education and training programs).

Supporting Broader Resilience

The telecommunications projects will contribute to improved drought resilience of the Northwest Region through:

- Transforming the 'agtech' communications infrastructure and capability.
- Modifying and enhance the existing and remote water monitoring capability of the agricultural sector (through tank level sensors, trough level sensors, remote pump control, pressure/flow sensors, remote cameras, weather stations, and vehicle Wi-Fi meshing).
- Maintaining sustainability of local businesses, tourism and agricultural operations, through the provision of a resilient telecommunications system.

Additionally, the relevance of the project to improving the resilience of the region to identified challenges follows.

Challenge	Telecommunications Security Relevance
Economic Hardship	Secure telecommunications allow families facing economic hardship to access financial services remotely, such as online banking, applying for aid, or seeking employment opportunities. It also enables e-commerce for businesses trying to reach wider markets outside drought-impacted areas, helping sustain local economies.
School Closures or Reduced Services	With schools and health facilities potentially closing (decreased demand, operational challenges or funding) or reducing services (due to downsize from families moving away), reliable telecommunications is required for continuing education through online platforms and accessing telehealth services. This ensures that education and healthcare services are uninterrupted, bridging the gap caused by physical service disruptions.
Labour Needs on Farms	As labour demands increase on farms, telecommunications can facilitate the use of smart farming techniques, which can be monitored remotely, reducing the need for constant physical presence. This allows families to balance educational and health priorities alongside agricultural responsibilities.
Health Issues	Secure telecommunications networks ensure that individuals facing health issues can continue to access health information and Telehealth services without needing to travel. This is important in managing both emergency and health conditions when local health resources are strained or inaccessible.
Transportation	When transportation is unreliable or inaccessible, telecommunications provide a link to the outside world. Secure networks ensure that virtual meetings, remote schooling, and digital healthcare consultations are possible, mitigating the impact of disrupted physical mobility.

Challenge	Telecommunications Security Relevance
Psychological Stress	Reliable telecommunications support mental health by enabling access to online counselling and support groups, which are more common during times of increased stress and isolation caused by drought. These services help maintain mental well-being and provide coping mechanisms for individuals and communities facing prolonged drought conditions.

Figure 45: Analysis of Resilience Challenges associated with the project

The projects support the pillars of drought resilience as follows:

Pillar 1 : Planning & Monitoring	Pillar 2 : Responding to Drought Events	Pillar 2 : Building Future Resilience
• Identify telecommunications blackspots of 4G and 5G networks. • Plan for the upgrade and expansion of 4G and 5G networks. • Monitor current network usage and predict future demands to inform infrastructure improvements.	• Identify and prioritise network support for critical agricultural operations and essential businesses during drought conditions. Timely data about weather changes, soil moisture, and crop conditions can significantly mitigate the impact of drought on agricultural productivity. • Implement emergency communication protocols to maintain connectivity for critical services when standard infrastructure fails. For drought stricken areas, this means ensuring that critical updates regarding water availability, relief programs, and health advisories reach all community members reliably and quickly.	• Invest in resilient telecommunications infrastructure capable of withstanding extreme weather events. • Foster innovative tech solutions to ensure uninterrupted connectivity and support the digital needs of businesses and agriculture.

Figure 46 - Drought Resilience, Adaption and Management Model Pillars – Telecommunications Projects

Timeline



Figure 47 – Timeline – Telecommunications Security Projects

Economic Analysis

An economic analysis for the Telecommunications Project follows. The analysis included identification of the Costs and Benefits of the projects, and the completion of a Cost Benefit Analysis.

The methodology employed was consistent with the real options methodology of the NSW Treasury Guidelines and remained within the cash flow framework of Treasury's recommended rapid cost-benefit analysis technique.

Accordingly, the nature of the technique is to assess benefits and costs at a high level, using readily available secondary data, but not undertake primary research. Where primary research is lacking, the assessment proceeds by estimating through a decision tree the likely costs and benefits of each "known unknown" in the project logic and incorporating this assessment on a risk (probabilistic basis) in the analysis.

For the cost-benefit analysis, the telecommunications strategy was assessed against a base case:

- Base Case – Planning without projects
– A base level of expenditure based on current planning for water security and telecommunications within the regions is assumed.
- Option 1 – Telecommunications Upgrade –
Improve telecommunications connectivity (4G and 5G) in the region to support business and agricultural productivity.

Costs

The costs have been calculated on benchmark estimates by area and scope.

The principal tasks involved in the Telecommunications Security project include investigating significant areas of non-connection to the mobile broadband network and subsequent implementation of “black spot” investments to locate new towers to support continuity of coverage. This will enable in-paddock and at-home phone service improvement and improve work-from-home capabilities.

A number of similar programs, including Squadron Link, have been used to benchmark costs.

Description of work	Unit cost	Units	Total cost:
Mobile coverage and Topographical Survey	\$50,000	1	\$50,000
Towers	\$20,000	30	\$600,000
Fibre connectivity	\$200,000	1	\$200,000
Solar powered battery packs	\$50,000	1	\$50,000
Licensing & Subscription	\$50,000	1	\$50,000
Project Management	\$200,000	1	\$200,000
Escalation & Contingency	\$50,000	1	\$50,000
Total Cost			\$1,200,000

Figure 48: Mobile Phone Coverage Investment

Benefits

The impact charts illustrate the likely benefits of the major options:

- Improved telecommunications offer safety and health benefits to the region. As permanent infrastructure, benefits accrue both in and outside emergency situations like drought or flood.
- Safety: Emergency response time savings valued using risk and value of life.
- Health: Reduced transport cost to nearest health centre. Improved pre-care for emergency patients.
- Supporting operational continuity of local businesses, community and agricultural activities.
- Improving the community's confidence in their economic stability.

These benefits can be further broken down into:

- Local business and community operational continuity benefits;
- Benefits for non-local users, either as receivers of telecommunications in other regions, or as visitors to the region; and
- Health-related benefits for the local community.

To these can be added the technological benefits of the proposed device program being used by farmers to give a more efficient water use. Measuring these benefits includes calculating the time savings from better telecommunications and valuing them using average earnings.

Description of work	Total cost:	
Black spots addressed	5	
Population Impacted	100%	
Time saving (hours per annum per person)	0.1	Estimate
Value	\$1,958	Average Weekly Earning
Value per hour	\$56	35 hour week
Value of time saving per annum	\$5.59	
Total population impacted	2,550	Population of the Warren region

Figure 49 General Telecommunications Benefits

The total value in the Rapid Cost Benefit Analysis Model is calculated as the value of local time saving (\$5.59 per person) times the local population, plus the value to the population as a whole per person, \$0.06 times the state population.

Cost Benefit Analysis

The outcomes of the Cost Benefit Analysis, including a sensitivity analysis for the telecommunications security project follows with the tables showing the results after costs are netted off from benefits.

Option	NPV	BCR
Base Case: Planning without projects	-\$170,915	
Option 1: Telecommunications Security	\$2,483,237	3.471

Figure 50 Rapid Cost Benefit Analysis Results. Source: Analysis using NSW Treasury Rapid BCA Model

Option 1 has a benefit cost ratio greater than 1 at a 5% discount rate.

Sensitivity and Distributional Analysis

The Telecommunications Security project has a positive Net Present Value at all discount rates considered.

Sensitivity	3% Discount Rate		7% Discount Rate		10% Discount Rate	
Option	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-\$170,729		-\$170,912		-\$170,632	0.106
Option 1	\$3,418,118	4.408	\$1,821,703	4.408	\$1,149,572	2.139

Figure 51 Sensitivity Testing - Discount Rate

The results are insensitive to cost and benefits variance up to +/- 20%.

	Costs +20%		Costs -20%		Benefits +20%		Benefits -20%	
Option	NPV	BCR	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-\$209,962		-\$131,867		-\$166,050		-\$175,779	
Option 1	\$2,282,284	2.893	\$2,684,189	4.339	\$3,180,837	4.166	\$1,785,637	2.777

Figure 52 Sensitivity to Cost and Benefit Variance

The Telecommunications Security project has positive Net Present Values for both Low Case scenarios and High Case scenarios.

Scenario	Low Case Scenario		High Case Scenario	
Option	NPV	BCR	NPV	BCR
Base Case	-\$214,827		-\$127,002	
Option 1	\$1,584,685	2.314	\$3,381,789	5.207

Figure 53 Sensitivity to Negatively Correlated Benefit / Cost Variance

The Low Case Scenario assumes a cost increase of 20% and a benefit decrease of 20% with a social discount rate of 5%.

The High Case Scenario assumes a cost decrease of 20% and a benefit increase of 20% with a social discount rate of 5%.

Governance Structure

The 'owner' of the initiative, and the Chair of the Steering Committee for each project within the initiative will be at the discretion of the Far Northwest Joint Organisation and the respective Councils within the region.

Governance Structure for the project would comprise the following:

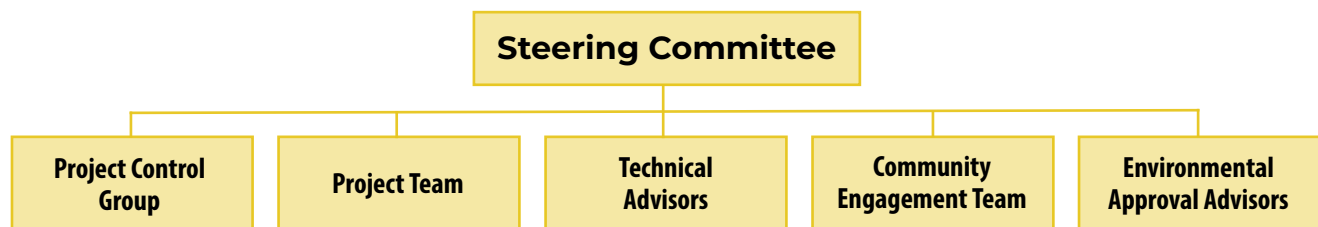


Figure 54 – Governance Structure – Telecommunications Security Projects

- **Steering Committee:** responsible for strategic direction, oversight, decision-making, and ensuring that the project aligns with funding program. It could include representatives from the key stakeholders such as:
 - o Federal/State Governments.
 - o Telecommunications Regulators.
 - o Mobile Network Operators.
 - o Mobile Network Infrastructure Providers.
- **Project Control Group (PCG):** Responsible for monitoring progress, managing project risks, making decisions about day-to-day operational issues, and ensuring the project stays on schedule and within budget.
- **Project Team:** Comprising of Project Manager, Technical Team Members and Administrative Support.
- **Technical Advisors:** Experts in telecommunications, environmental science, and community engagement, would provide technical advice to feasibility studies
- **Community Engagement Team:** Manage stakeholder communications and engagement activities
- **Environmental Approval Advisors:** Oversee all environmental assessments, ensure compliance with regulations, and manage the environmental impact studies and development approvals process.

A proposed adaptive framework for monitoring and updating the project / initiative follows.

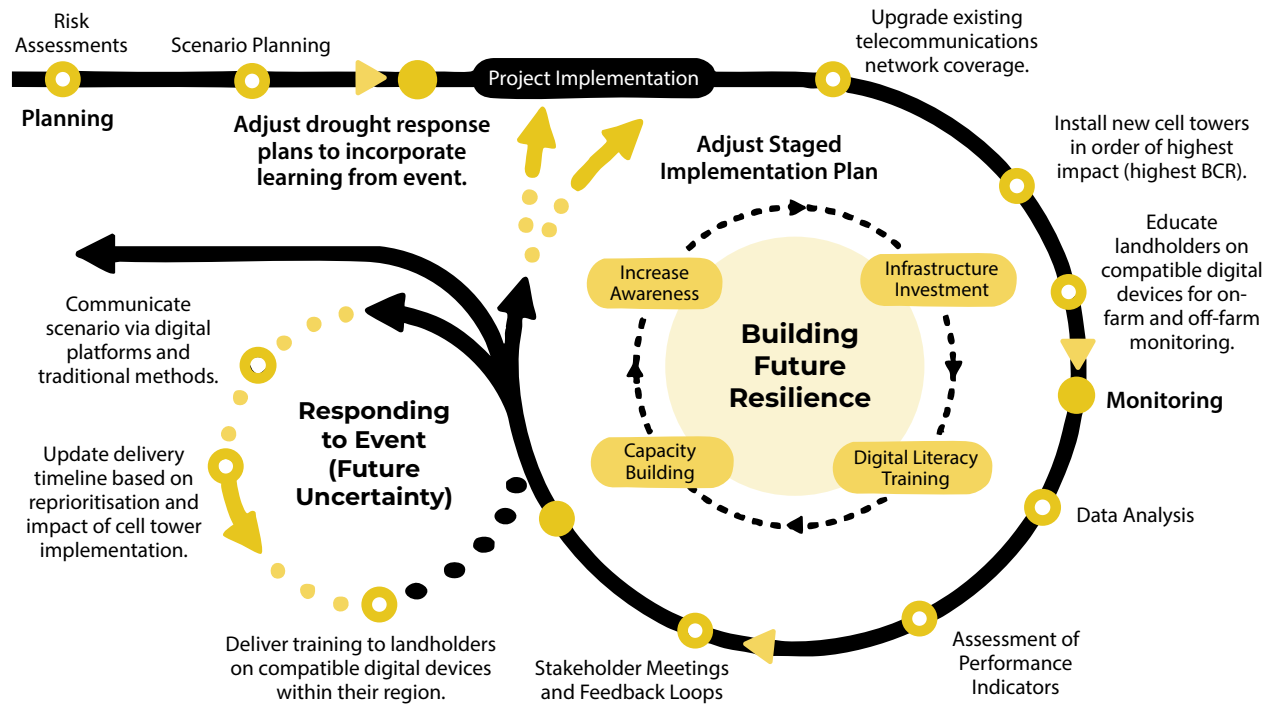


Figure 55: Framework for monitoring and updating Telecommunications Strategy delivery (TSG 2024).

Responsiveness to Future Scenarios and Uncertainties

An analysis of the impact of potential future scenarios and uncertainties on the implementation and delivery of the project follows.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Economic Recession	• Decreased funding for telecommunications upgrades and maintenance. • Lower participation in digital literacy and economic stability programs due to financial hardships	• Seek additional funding from state or federal grants. • Adjust project scope to align with reduced budgets. • Focus on low-cost, high-impact infrastructure upgrades e.g. staged implementation of upgrades with most significant coverage.
Policy & Governance Changes	• Uncertainty in policy direction, affecting strategic planning and resource allocation. • Delays in funding and support for telecommunications programs due to regulatory changes. • Inconsistent support for social and infrastructure development initiatives.	• Increased advocacy and engagement with policymakers to ensure supportive policies. • Develop partnership with a private telecommunications company to reduce effect of government changes on delivery timeline. • Establish a policy advisory group to guide the project and navigate regulatory changes. • Provide community engagement sessions between telecommunications provider to ensure community members are aware of the effect of technological redundancies that may result from policy variation.
Technological Advancements	• Variability in the adoption and effectiveness of new technologies for telecommunications. • Potential disparities in access to technology among community members.	• Ensure that technology advancements are compatible with all network generations to prevent redundancy. • Allocate budget for training and capacity building for landowners to implement advanced technology and utilise efficiently. • Ensure that cell towers can be easily updated at a reduced cost when technology becomes available. • Develop long-term partnerships and contracts with telecommunications providers that ensure updates to technology are conducted as they become available.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Climate Variability	• Increased risk of damage to telecommunications infrastructure from extreme weather events. • Potential interruptions in service affecting business continuity and community communication.	• Increased budget for climate-resilient infrastructure and repair contingencies. • Ensure that cell towers and installed technology is designed to withstand extreme weather conditions. • Complete regular maintenance and monitoring to ensure infrastructure resilience.
Increased Fire Risk	• Damage to telecommunications infrastructure, reducing service availability and impacting communication. • Significant resources diverted to firefighting and recovery, affecting project funding. • Long-term degradation of community connectivity.	• Design and implement fire-resistant telecommunications infrastructure.
Health Crises	• Reduced community engagement and event attendance in digital literacy programs due to health concerns. • Increased strain on local healthcare systems impacting telehealth services. • Diversion of funding from telecommunication investment to the healthcare system. • Diminished ability for individuals to access healthcare services on-demand.	• Collaboration with healthcare providers to integrate telehealth services. • Implementation of strict health and safety protocols for infrastructure installation and maintenance. • Digital health platform that connects residents with all healthcare providers in the region.
Outmigration	• Reduced participation in digital literacy programs. • Change in percentage coverage and proportional access from cell tower implementation in particular regions. • Lower volunteer numbers, impacting the implementation and maintenance of infrastructure. • Decreased economic activity and local business engagement.	• Extended timeline for project delivery due to reduced workforce availability. • Re-prioritise cell tower implementation regularly following implementation of prior tower. • Increased costs for attracting and retaining volunteers and participants. • Implementation of incentives to encourage local participation and retention. • Develop targeted outreach programs to re-engage out-migrated community members.

Figure 56: - Analysis of the impact of potential future scenarios and uncertainties

Monitoring, Evaluation and Learning – Pillar Implementation

Success measures and indicators that might be used by the Project Steering / Control Group for the project to measure the extent of progress towards the outcomes expressed in the program logic and delivery of the project follow.

Pillar 1: Planning and Monitoring

- Risk Assessments and Scenario Planning
 - Conduct detailed risk assessments to identify potential impacts on telecommunications infrastructure and digital services.
 - Develop scenarios for various shocks, including climate events and economic shifts, to anticipate challenges and plan responses.
- Advanced Data Analytics
 - Use geographical information systems (GIS) to monitor environmental conditions and infrastructure performance e.g. how has coverage and network connectivity varied due to implementation of cell towers.
 - Analyse data to assess the impact of climate variability on network reliability and coverage.
- Regular Stakeholder Meetings and Feedback Loops
 - Engage local businesses, community members, and government agencies in regular consultations.
 - Incorporate stakeholder feedback to adapt plans and improve project outcomes.

- Performance Indicators
 - Establish KPIs to track the success of telecommunications upgrades e.g. redundancy of on- and off-farm technologies is decreased with subsequent network updates. network coverage across the region is increased and maintained.
 - Use real-time monitoring to adjust strategies as needed

Pillar 2 : Responding to Drought Events

- Drought Response Plans
 - Develop clear actions and responsibilities for maintaining telecommunication services during droughts.
 - Ensure plans include supporting remote monitoring of agricultural equipment and community connectivity.
- Water-Efficient Technologies and Practices
 - Implement solar-powered stations to reduce dependency on water-intensive power generation.
 - Use drought-tolerant landscaping around cell towers to maintain access with minimal water use.
- Alternative Community Activities
 - Promote online and virtual community activities that do not rely on physical presence.
 - Enhance digital infrastructure to support remote work, education, and social engagement during drought conditions.
- Emergency Communication Strategies
 - Implement communication plans and digital platforms to keep community members informed about drought conditions, responses and resultant changes to the program schedule.

Pillar 3 : Building Future Resilience

- Climate Resilient Infrastructure
 - Invest in flexible, adaptive telecommunications infrastructure that can operate under different environmental conditions.
 - Incorporate sustainable design principles to enhance durability and reduce environmental impact.
- Economic Diversification
 - Support local businesses in adopting digital tools to expand their market reach, reduce economic vulnerability, reduce

reliance on human resources, and enable off-farm management.

- Community Education and Capacity Building
 - Provide training for local residents on digital literacy and the use of new telecommunications technologies.
 - Promote awareness of digital resilience and the importance of robust telecommunication infrastructure.

Monitoring Against Objectives

The applicable objectives of the Future Drought Fund Agreement, and relevant project level indicators to track outcomes and how the project is contributing to drought resilience outcomes follow.

Objective 1 : Develop the agricultural sector's self-reliance and economic performance.

- Percentage increase in 4G and 5G coverage across agricultural areas.
- Number of agricultural operations utilising enhanced telecommunications for remote monitoring and control of equipment, and decreased technology and device redundancy with implementation of new networks.
- Percentage reduction in operational downtime due to improved connectivity.
- Increase in productivity and efficiency metrics because of Agtech adoption (e.g. reduced water usage, optimised crop yields).

Objective 2 : Strengthen the social capital and wellbeing of the communities.

- Number of community facilities (e.g. schools, health centres), with improved telecommunications infrastructure.
- Number of telehealth services available and utilised within the community.
- Percentage increase in mental health support sessions conducted via telecommunication platforms.

Objective 3 : Understand and plan for the region's current and future drought resilience by identifying actions, pathways, and opportunities for mitigation, adaptation and improvement.

- Percentage of farmers and businesses utilising drought data from sensors and monitoring devices for real-time tracking of environmental conditions and decision making.

Stronger Communities Program



Project Description

Residents of the Northwest region frequently experience increased stress during drought conditions. During Droughts the situation is worsened:

- by the departure of key services and community members, which puts additional strain on the remaining volunteers and community leaders.
- by a noticeable lack of support or awareness of the available aid during these times.
- when various social events are organised with a primary focus on drought-related themes. This approach often limits opportunities for community members to engage and interact without the constant overshadowing of drought conditions.
- by the sole reliance on farming for a large majority of businesses within the region, increasing vulnerability of businesses during periods of drought.

The community has expressed a significant need for better data on the social effects of drought and the effectiveness of mental health interventions to address these issues.

The Stronger Communities Program is designed to improve community cohesion, well-being and financial resilience in the Northwest Region through:

- A series of targeted activities and frameworks specifically designed to maintain and improve the social fabric of rural and regional communities, and the resilience of businesses, particularly during extended or intense periods of drought.
- Events held regularly (monthly), in different towns across the region, regardless of 'drought' periods, to foster and promote social connectivity and stronger communities. These events aim to provide opportunities for community members to engage with each other in a relaxed environment, with a focus on interaction rather than drought discussion.
- Events designed to coincide with existing regional events (shows, festivals, etc), and have some reliance on partnerships

with local businesses and services. While not intended to be a counselling service, counselling representatives will be in attendance to establish trust and connections for those experiencing mental health challenges.

- The incorporation of Rural Financial sessions and mentoring to improve the knowledge, skills and strategies of local farmers and businesses to better plan for, respond to, and recover from drought events.

"There is a reason for the decrease in population, especially in adult males, because historically we would have three or four people always working with us, but now technology is such that a lot of middle-aged males are out there on their own for extended periods. Our paranoia about being away from the farm is there. The big winner has been the regional sport for adults and kids. Kids sport brings families together. All of this also prevents children and teenagers from being at home bored, they are not acting as delinquents around our streets at 2 O'clock in the morning. It isn't a drought thing, but a social living thing."

– *Greg Whiteley*

Scope

The scope of the 'Stronger Communities Program includes:

- Activities and events aimed at promoting social cohesion and connectivity, supported by council-led initiatives.
- Regular, targeted consultations with key demographic groups, (including First Nations people, young families, and the youth), to incorporate their insights into resilience planning
- Community sports activities and events designed to counter social isolation and bolster mental health, particularly among young men.

- Provision of administrative support roles to alleviate the workload on volunteers and community leaders during droughts.
- Content development for financial resilience sessions e.g. government assistance, debt mediation, risk management, business diversification, etc.
- Delivery of financial resilience sessions.
- Provision of community resources to serve as innovation hubs for developing drought resilience solutions.
- Development of a socially focused drought resilience framework to evaluate the impact of drought and the effectiveness of support programs.
- Development and delivery of educational programs, direct business mentoring, and the promotion of innovative practices that enhance drought resilience.

Pathway to implementation

The pathway to the delivery of the initiative includes:

1. Formation of a Steering and Project Control / Working Group under the respective Council.
2. Development of a plan (that includes stakeholder engagement) to underpin the implementation of activities and events aimed at promoting social cohesion and connectivity (targeted consultations, community events and activities).
3. Development of a socially focused drought resilience framework to evaluate the impact of drought and the effectiveness of the support programs.
4. Detailed cost estimate (activities, (including the financial resilience sessions) and administrative support roles).
5. Design of the administrative support roles.
6. Funding applications and approvals.
7. Content development for financial resilience sessions.
8. Development of the detailed program of events / activities.
9. Scheduling and advertising of events / activities.
10. Conduct and evaluation of activities.

Supporting Broader Resilience

The 'stronger communities' program projects will contribute to improving drought resilience of the Northwest Region through:

- Modifying the existing system for the provision of support during periods of drought.
- Maintaining the social cohesion and connectivity of the region.

Additionally, the relevance of the project to improving the resilience of the region to identified challenges follows.

Challenge	Stronger Communities Program Relevance
Social Isolation and Mental Health	Programs aimed at enhancing social cohesion and providing mental health support reduce the strain on community members, improving overall community well-being during drought periods.
Reduced Community Services	Increasing the capacity of local services and supporting volunteer leaders, the program helps maintain essential community functions during challenging times.
Reduced Community Knowledge Sharing Opportunities	Encourages connection among community members, enabling them to share effective coping strategies and support each other through the collective experiences of managing drought impacts.
Sports Facility Maintenance	Supports the maintenance of sports facilities which suffer during droughts, ensuring they remain operational. This maintains opportunities for physical activity and social interaction, important for mental and physical health during challenging periods.

Challenge	Stronger Communities Program Relevance
Decline in agricultural productivity	By providing educational programs and strategic management tools, the program helps farmers make informed decisions during critical phases of drought, such as destocking or modifying farming plans to preserve resources, thereby mitigating the severity of productivity losses.
Economic contraction and loss of employment	The program promotes diversified income sources, such as tourism and alternative agricultural practices, reducing the sole reliance on traditional farming. This diversification helps stabilise local economies and retain populations during droughts, thereby sustaining employment and economic activity.
Environmental degradation	Training and support in innovative farming practices and environmental management are central to the program, helping farmers adopt sustainable practices that maintain soil health and reduce environmental impact during drought conditions.

Figure 57: Analysis of Resilience Challenges associated with the project

The projects support the pillars of drought resilience as follows:

Pillar 1 : Planning & Monitoring	Pillar 2 : Responding to Drought Events	Pillar 2 : Building Future Resilience
• Engage in data collection and regular community consultation to inform resilient planning and support system development. • Support the development of regional drought resilience and management plans, ensuring they reflect the community's needs. • Educate farmers and business owners on proactive decision-making through workshops and one-on-one mentoring. • Incorporate responsive planning and agricultural practices.	• Launch community activities and support services quickly during drought periods to maintain social networks and well-being. • Implement administrative support roles to alleviate pressures on community leaders and volunteers. • Identify vulnerable sectors within agriculture and local businesses that require support during drought. • Develop targeted support mechanisms for these groups.	• Develop enduring community facilities and infrastructure that contribute to long-term drought resilience and community wellbeing. • Foster local leadership and entrepreneurship, particularly among the youth, to drive community initiatives that build resilience. • Encourage the adoption of innovative farming practices and diversification strategies. • Collaborate with stakeholders to develop infrastructure and business models that can withstand drought conditions. • Undertake measures such as workshops and consultations to mitigate the impacts of drought and enhance long-term resilience.

Figure 58 - Drought Resilience, Adaption and Management Model Pillars – Stronger Communities Program

Timeline



Figure 59 - Timeline – Stronger Communities Program

Budget

Specific budgets to be allocated post-consultation phase for each activity, with considerations for infrastructure, personnel, and marketing.

Accordingly, an economic analysis for this program has not been able to be completed within this plan.

Governance Structure

The 'owner' of the initiative, and therefore the Chair of the Steering Committee for each project within the initiative will be at the discretion of the respective Council within the region.

Governance Structure for the project would comprise the following:

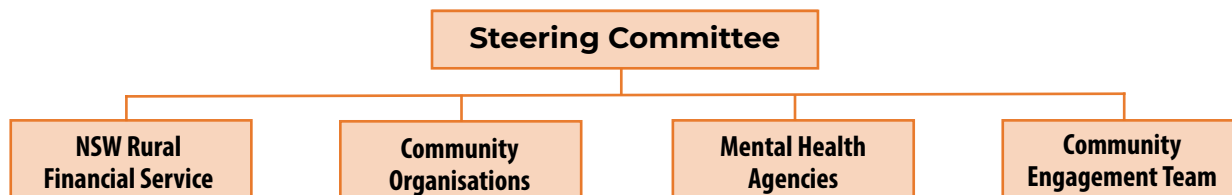


Figure 60 – Governance Structure – Stronger Communities Program

The Steering Committee is responsible for the strategic direction, oversight, decision-making, and ensuring that the project aligns with a funding program.

A proposed adaptive framework for monitoring and updating the project / initiative follows.

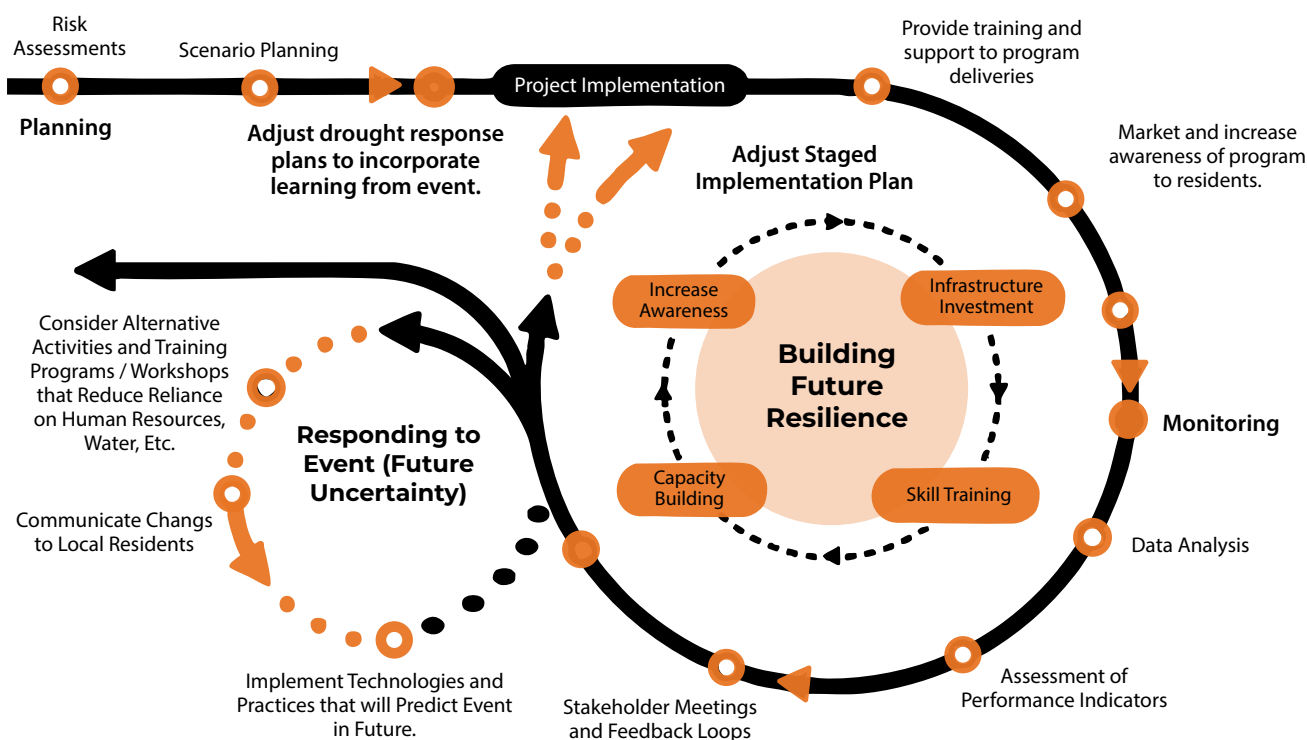


Figure 61: Framework for monitoring and updating the Stronger Communities Program (TSG 2024).

Events Schedule: Example of Events Schedule - Each community will develop their own Events Schedule with activities, dates and locations TBD by each Steering Committee.

Date	Location	Event Title	Event Description	Sponsor
October 10, 2024	Coonamble Showground Pavilion	Community BBQ & Games	A fun day with BBQ, games, and activities for all ages.	Coonamble Shire Council
October 20, 2024	Coonamble Community Hall	Financial Literacy for Rural Families	Workshop on financial literacy, budgeting, and savings tailored for rural families.	Rural Financial Counselling Service NSW

Date	Location	Event Title	Event Description	Sponsor
December 8, 2024	Warren Windows on the Wetland Precinct	Family Movie Night	An outdoorovie night for families with free popcorn.	Warren Shire Council
December 15, 2024	Online	Online Workshop on Drought Management	Webinar on managing finances during drought, including emergency funds.	Rural Financial Counselling Service NSW
February 12, 2025	Nyngan Showgrounds	Teen Sports Day	A day of sports competitions and activities for teenagers.	Bogan Shire Council
February 25, 2025	Warren Community Room	Tax Planning and Preparation	Detailed workshop on tax planning, preparation, and maximizing deductions.	Warren Shire Council
April 16, 2025	Coonamble Recreation Park	Family Picnic Day	A relaxed picnic with food, music, and family games.	Coonamble Local businesses
April 20, 2025	Online	Superannuation Essentials	Understanding superannuation and planning for the future.	Rural Financial Counselling Service NSW
June 10, 2025	Warren Sport & Cultural Centre	Adults' Trivia Night	A fun trivia night with prizes for adults.	Warren Local Businesses
June 15, 2025	Nyngan Community Centre	Managing Loans and Interest Rates	Workshop on managing loans, understanding interest rates, and financial planning.	Bogan Shire Council
August 12, 2025	Coonamble Park	Family Gardening Day	A day dedicated to community gardening and environmental activities.	Coonamble Environmental Club
August 25, 2025	Online	Children's Financial Literacy Program	Interactive program teaching children the basics of financial management	Local Schools
October 14, 2025	Coonamble Showgrounds	Family Fun Fair	A fair with rides, games, and food stalls for families.	Coonamble Community Groups
October 20, 2025	Coonamble Community Hall	Tracking Farm Finances Effectively	Workshop on effective tracking of farm finances, including income and expenses.	Coonamble Shire Council
December 9, 2025	Warren Sport & Cultural Centre	Adults' Comedy Night	A comedy night featuring local comedians for adults.	Warren Community Groups
December 15, 2025	Online	Understanding Depreciation	Webinar explaining depreciation and its application in farming.	Rural Financial Counselling Service NSW
February 10, 2026	Nyngan Civic Centre	Teen Disco	A disco night with music and dancing for teenagers.	Bogan Community Groups
February 20, 2026	Warren Community Room	End of Financial Year Planning	Workshop on preparing for the end of the financial year with practical tips.	Warren Shire Council
April 14, 2026	Coonamble Swimming Pool	Family Sports Day	A day of sports activities and games for families.	Coonamble Sports Clubs
April 25, 2026	Online	Investment Strategies	Strategies for investing wisely in rural communities.	Rural Financial Counselling Service NSW
June 9, 2026	Warren Museum & Art Gallery	Adults' Wine & Cheese Evening	A sophisticated evening of wine tasting and cheese for adults.	Warren Cultural Association

Date	Location	Event Title	Event Description	Sponsor
June 20, 2026	Nyngan Community Centre	Debt Management and Credit	Managing debt, understanding credit, and improving financial health.	Bogan Shire Council
August 11, 2026	Nyngan Recreation Reserve	Kids Art Workshop	An art workshop for kids to explore their creativity.	Bogan Arts Council
August 25, 2026	Online	Kids' Saving Strategies	Teaching kids about saving money and setting financial goals.	Local Schools
October 13, 2026	Coonamble Town Hall	Family Halloween Party	A Halloween party with costumes, games, and treats for families.	Coonamble Retailers
October 20, 2026	Coonamble Community Hall	Budgeting and Cash Flow Management	Creating effective budgets and managing cash flow in agricultural businesses.	Coonamble Shire Council
December 8, 2026	Warren Victoria Park & Oval	Adults' Live Music Night	A night of live music performances for adults.	Warren Music Society
December 15, 2026	Online	Building Financial Resilience	Building financial resilience in rural areas to withstand economic challenges.	Rural Financial Counselling Service NSW
February 9, 2027	Nyngan Community Centre	Teen Talent Show	A talent show for teenagers to showcase their skills.	Bogan Youth Centre
February 20, 2027	Warren Community Room	Long-Term Financial Planning	Planning for long-term financial stability and succession planning.	Warren Shire Council
April 13, 2027	Coonamble Park	Family Gardening Day	A day dedicated to community gardening and environmental activities.	Coonamble Environmental Club
April 25, 2027	Online	Using Financial Tools and Apps	Using modern financial tools and apps for better financial management.	Rural Financial Counselling Service NSW

Figure 62 – Stronger Communities Program - Events

Responsiveness to Future Scenarios and Uncertainties

An analysis of the impact of potential future scenarios and uncertainties on the implementation and delivery of each project follows.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Economic Recession	- Decreased funding for community events and programs. - Lower participation in financial literacy and resilience sessions due to economic hardships. - Reduced support from local businesses and sponsors.	- Seek additional funding from state or federal grants. - Adjust project scope to align with reduced budgets. - Focus on low-cost, high-impact activities and events. - Strengthen partnerships with local businesses to share resources and costs. - Introduce subsidised participation fees to encourage involvement.
Policy & Governance Changes	- Uncertainty in policy direction, affecting strategic planning and resource allocation. - Delays in funding and support for community programs due to regulatory changes.	- Establish a policy advisory group to guide the project and navigate regulatory changes. - Flexibility in project timelines and milestones to accommodate policy changes.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Policy & Governance Changes	• Inconsistent support for social and economic development initiatives.	• Regular monitoring of policy developments and proactive adjustments to project plans. • Develop a comprehensive communication strategy to keep stakeholders involved.
Technological Advancements	• Variability in the adoption and effectiveness of new technologies for community engagement and financial literacy. • Potential disparities in access to technology among community members.	• Allocate budget for training and capacity building in new technologies. • Incorporate the latest compatible technologies for community engagement and financial management tools. • Collaborate with technology providers and researchers to stay updated on how advancements can be implemented in region to reduce human resource reliance. • Develop user-friendly digital platforms to enhance community participation and access to information.
Climate Variability	• Cancellation or low attendance at outdoor events due to extreme weather conditions. • Damage to infrastructure like community centres and sports facilities, reducing venue availability. • Increased difficulty in maintaining green spaces and sports fields.	• Increased budget for climate resilient infrastructure and event venues. • Contingency planning for extreme weather events, including alternative indoor venues. • Adjust event schedules to avoid extreme weather periods. • Incorporate flexible infrastructure that can be adapted quickly to changing conditions. • Regular maintenance and monitoring of community spaces to ensure safety and usability.
Increased Fire Risk	• Damage to community infrastructure and homes, reducing venue availability and participation. • Significant resources diverted to firefighting and recovery, affecting project funding. • Long-term degradation of community spaces and green areas.	• Design and implement fire-resistant infrastructure and safe community spaces. • Deliver community activities that enable all residents to be involved in advocacy, awareness and prevention of fires.
Health Crises	• Reduced community engagement and event attendance due to health concerns. • Increased strain on local healthcare systems. • Higher costs for enduring health and safety standards at events.	• Inclusion of health and wellness components that match the crisis at the time e.g. education and awareness. • Collaboration with healthcare providers to integrate health services. • Implementation of strict health and safety protocols at all events.
Outmigration	• Reduced participation in community events and financial literacy sessions. • Lower volunteer numbers, impacting event organisation and community support. • Decreased economic activity and local business engagement.	• Extended timeline for project delivery due to reduced workforce availability. • Increased costs for attracting and retaining volunteers and participants. • Implementation of incentives to encourage local participation. • Adapt event schedules to ensure maximum attendance and engagement. • Develop targeted outreach programs to reengage out-migrated community members.

Figure 63: - Analysis of the impact of potential future scenarios and uncertainties

Monitoring, Evaluation and Learning – Pillar Implementation

Success measures and indicators that might be used by the Project Steering / Control Group for the project to measure the extent of progress towards the outcomes expressed in the program logic and delivery of the project follow.

Pillar 1 : Planning and Monitoring

- Risk Assessments and Scenario Planning
 - Conduct detailed risk assessments to identify potential impacts on community events and support services.
 - Develop scenarios for various drought conditions to anticipate challenges and plan responses.
- Advanced Data Analytics
 - Use geographical information systems (GIS) to monitor environmental conditions and community engagement/ participation patterns.
 - Analyse data to assess the impact of climate variability on event participation and involvement of community support services.
- Regular Stakeholder Meetings and Feedback Loops
 - Engage local businesses, community members, and government agencies in regular consultations.
 - Incorporate stakeholder feedback to adapt plans and improve project outcomes.
- Performance Indicators
 - Establish KPIs to track the success of community initiatives e.g. reduced mental health related appointments with healthcare services, reduced feelings of isolation.
 - Use real-time monitoring to adjust strategies as needed.

Pillar 2 : Responding to Drought Events

- Drought Response Plans
 - Develop clear actions and responsibilities for managing community resources and supporting local businesses during droughts.
 - Ensure plans include maintaining social cohesion and supporting mental health services.
- Water-Efficient Technologies and Practices
 - Install water-saving devices in community facilities.

- Use drought-tolerant landscaping to maintain community spaces with minimal water use.
- Alternative Community Activities
 - Promote indoor and water-independent activities e.g. workshops, indoor sports and cultural events.
 - Create flexible infrastructure that can adapt to varying environmental conditions.
- Emergency Communication Strategies
 - Implement communication plans and digital platforms to keep community members informed about drought conditions, responses and resultant changes to the program schedule.

Pillar 3 : Building Future Resilience

- Climate Resilient Infrastructure
 - Invest in flexible, adaptive community facilities that can operate under different environmental conditions.
 - Incorporate sustainable design principles to enhance durability and reduce environmental impact.
- Economic Diversification
 - Support alternative income sources and business ventures to reduce dependence on traditional agriculture.
- Community Education and Capacity Building
 - Provide training for residents on drought-resilient practices and financial management.
 - Promote awareness of community resilience and mental health support among residents. Promote community cohesion, connectivity and ensure residents feel a purpose outside of their individual 'workplaces'.

Monitoring Against Objectives

The applicable objectives of the Future Drought Fund Agreement, and relevant project level indicators to track outcomes and how the project is contributing to drought resilience outcomes follow.

Objective 1 : Strengthen the social capital and wellbeing of the communities.

1. Number of community events held annually and attendance rates at community events.

2. Percentage decrease in reported mental health issues related to drought stress and social isolation.
3. Number of targeted consultations with key demographic groups (e.g. First Nations people, young families, youth).
4. Participation rates in sports activities, particularly among young men.
5. Percentage of youth and disadvantaged groups reporting reduced feelings of isolation and improved mental health.
6. Reduced crime rates in youth.
7. Percentage of programs adjusted based on evaluation feedback and incidence of future shock scenarios.
8. Reduction in workload reported by volunteers, and increased initiative of entire communities.
9. Decrease in the outmigration rate and the subsequent rate of population decline.

Objective 2 : Develop the agricultural sector's self-reliance and economic performance.

1. Number of financial resilience sessions conducted and the percentage of participants reporting improved financial knowledge and skills.
2. Percentage of farmers and businesses adopting risk management and diversification strategies.
3. Reduction in financial losses reported by businesses during drought periods.
4. Number of drought resilience solutions developed and implemented through innovation hubs.

Sustainable Recreation & Tourism Strategy



Project Description

Develop and implement a tourism strategy:

- That focuses on sustainable recreational access to regional destinations such as rivers and marshes, with a special emphasis on adapting to drought conditions.
- Tailored for the Three Rivers and Macquarie Marshes (inspired by successful models like the Darling River Run) regions.
- To implement infrastructure for the sustainable management of tourist facilities and explore agri-tourism to diversify economic opportunities.

The strategy will facilitate the creation of recreational infrastructure that can adjust to fluctuating water levels and promote activities suitable for dry seasons.

The initiative aims to boost local economies, particularly in areas where recreational access is limited due to variable climate conditions, such as frequent droughts.

It will support local entrepreneurship through tourism-related businesses such as Airbnbs and Farm Stays and include town planning strategies to enhance attractiveness to visitors.

“‘Buy from the Bush’ was a great initiative, but we need to transition to ‘Buy in the Bush’ as besides the dollars gained from the actual purchase, no other money is entering into the region’s economy from this initiative. ‘Buy in the Bush’ would mean people are in the bush, staying over, visiting coffee shops, taking part in activities, and overall contributing greater to the economy... The community want something that is lasting – a legacy. A Three Rivers and Macquarie Marshes Strategy would provide economic development and the ability to create a long-term fund that can be contribute towards water security projects.”

– Susan Balogh (Warren)

“If you set local residents up to develop and attract people to their Green Stays, Farms Stays and AirBnB accommodations..., that would be incredibly beneficial. This could be incorporated into a tourism strategy to prepare and teach the local residents how to prepare themselves and diversity their income streams.”

– Gary Woodman (Warren)

Scope

The scope of the ‘sustainable recreation and tourism strategy’ includes:

- Development of a tourism strategy.
- Development of a framework and mechanisms to support local entrepreneurship for tourism related businesses (such as Airbnbs and Farm Stays).
- Development of infrastructure (facilities / support arrangements) to support the management and sustainability of tourism and recreational facilities.

Pathway to implementation

The pathway to the delivery of the initiative includes:

1. Development of a draft tourism strategy.
2. Review of town planning strategies and identification of policy and regulatory constraints.
3. Development of a framework and support arrangements for local entrepreneurship in tourism-related businesses.
4. Amendments to regulatory and policy town planning Implementation of town planning strategies to enhance town attractiveness for visitors.
5. Detailed design and cost estimates for infrastructure projects for the sustainable management of tourist and recreational facilities.
6. Business Case development and regulatory approvals.
7. Tender for construction or implementation of support arrangements (as required).

Supporting Broader Resilience

The 'sustainable recreation and tourism strategy' will contribute to improving drought resilience of the Northwest Region through:

- Maintaining the existing system of the local economy during times of drought.

- Modifying the town planning strategies to enhance tourist visitation.

Additionally, the relevance of the project to improving the resilience of the region to identified challenges follows.

Challenge	Stronger Communities Program Relevance
Economic Dependence on Agriculture	The strategy aims to diversify the local economy by introducing alternative income streams through tourism, which is less dependent on seasonal variability than agriculture. This helps mitigate economic risks associated with farming during drought periods.
Impact of Drought on Agriculture	Tourism provides an alternative economic activity that can continue during drought when agricultural productivity declines. This helps maintain cash flow and employment in the community, reducing the severe economic impacts of drought on farming.
Reduced Local Spending and Employment	By promoting tourism, the strategy can stimulate local spending and create jobs, counteracting the economic downturn caused by drought. This includes supporting small businesses and encouraging new ventures in the tourism sector.
Social Isolation and Community Well-being	Tourism fosters greater community engagement and well-being by providing recreational opportunities and events that bring people together, countering the social isolation often experienced during tough economic times like droughts.
Environmental Degradation	Sustainable tourism practices emphasise the preservation and careful management of natural resources, which is important during drought conditions. This can lead to improved environmental stewardship and resilience against future ecological challenges.
Volunteer Fatigue and Reduced Community Services	Tourism can help revitalise community spirit and increase the number of visitors and residents who can contribute to community services and volunteer efforts, thus alleviating the strain on the remaining local population during challenging times.
Infrastructure Strain and Water Management	Part of the tourism strategy includes developing infrastructure that is resilient to drought, such as water-efficient facilities and services. This not only supports tourism but also improves the overall community's resilience in managing scarce resources.
Psychological Impact of Drought	Tourism and recreational activities can improve mental health by providing escape and relaxation opportunities for residents, mitigating the psychological toll of enduring drought conditions and economic uncertainty.

Figure 64: Analysis of Resilience Challenges associated with the project

The projects support the pillars of drought resilience as follows:

Pillar 1 : Planning & Monitoring	Pillar 2 : Responding to Drought Events	Pillar 2 : Building Future Resilience
• Conduct destination management planning that accounts for drought scenarios and promotes sustainable recreational access. • Gather data and coordinate resources to improve community and regional planning for building drought resilience in tourism.	• Implement tourism strategies that allow for continued visitation and recreational activities during drought conditions, mitigating economic impacts. • Facilitate workshops to develop community-led tourism initiatives that adapt to and manage the challenges presented by drought.	• Support small-scale infrastructure projects that enhance the sustainability and appeal of tourist facilities, considering future drought scenarios. • Encourage community leadership and entrepreneurship in developing drought-resilient tourism and recreational activities.

Figure 65 - Drought Resilience, Adaption and Management Model Pillars - Sustainable Recreation & Tourism Strategy

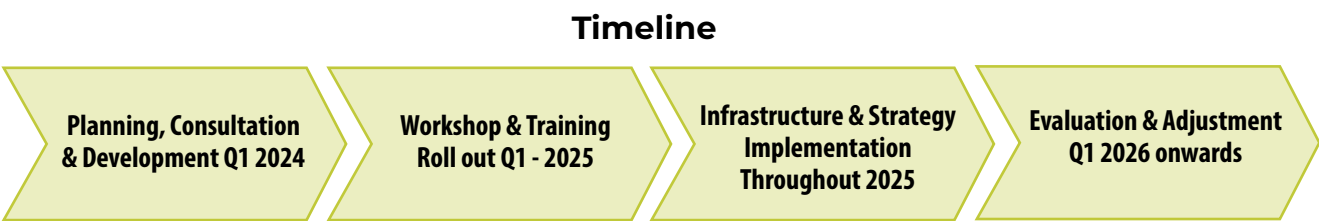


Figure 66 - Timeline – Sustainable Recreation & Tourism Strategy

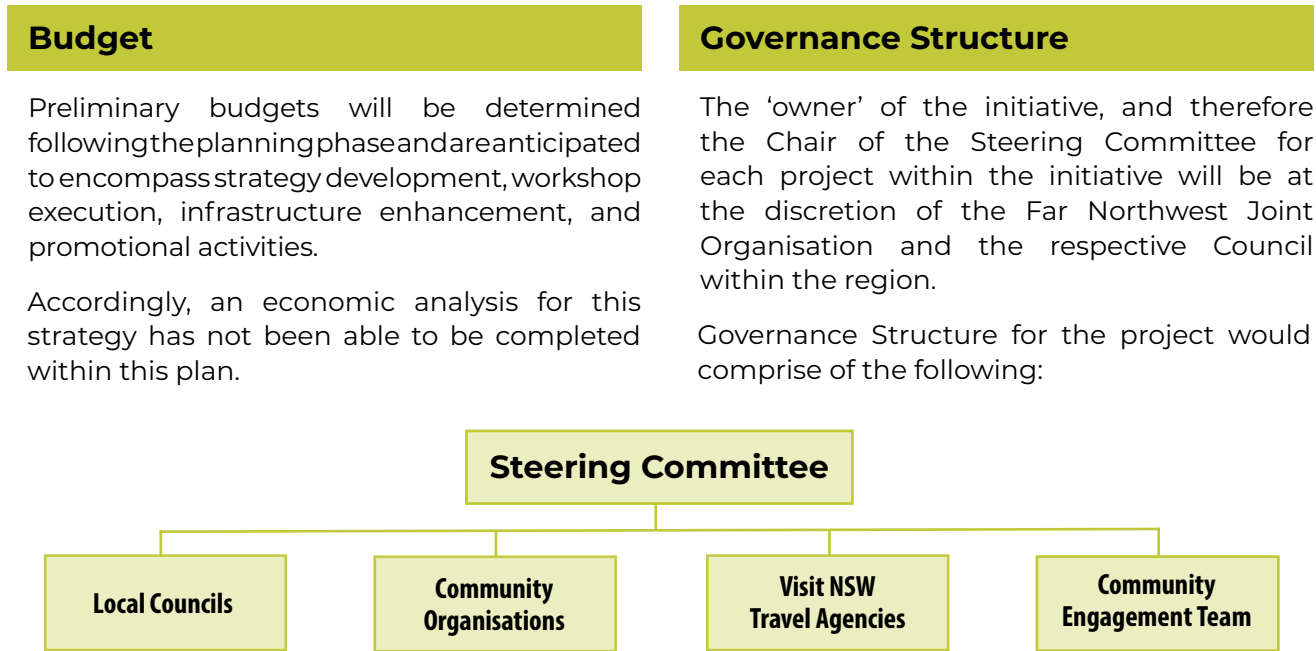


Figure 67 – Governance Structure – Sustainable Recreation & Tourism Strategy

- Steering Committee: responsible for strategic direction, oversight, decision-making, and ensuring that the project aligns with funding program.
- The supporting organisations will be involved in contributing to the design, construct and management of the strategy.

A proposed adaptive framework for monitoring and updating the project / initiative follows.

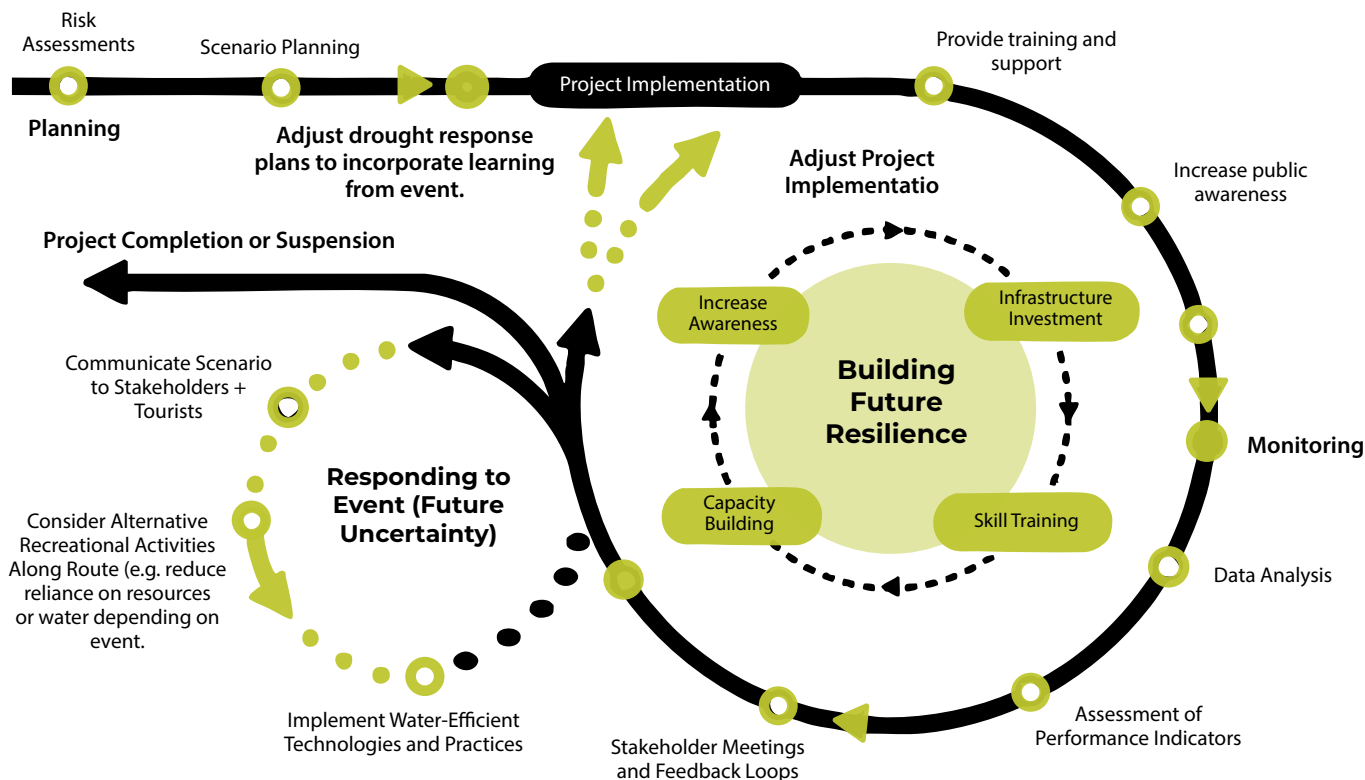


Figure 68: Framework for monitoring and updating the Sustainable Tourism and Recreation Strategy (TSG 2024).

Three Rivers and Macquarie Marshes Run

The Route: Proposed route to be further investigated and confirmed by stakeholders prior to implementation to account for community events and tourism product availability.

Day	Route	Stops
1		Walgett
2	Walgett to Coonamble	Follow the Castlereagh River, stopping via: • 'Burrima' Boardwalk in Upper Macquarie Marshes • Quambone – Marsh Meanders Kayaking Coonamble Outback Arts Gallery
3	Coonamble to Warren	Gulargambone – Stop to see the iconic Two Eight Two Eight Gallery, Sculpture Walk and Town Murals Warren – Window on the Wetlands Centre and Oxley Park
4	Warren to Nyngan	Roundtrip from Warren to Macquarie Marshes Nature Reserve. Gin Gin Weir Trangie – Explore the Trangie Agricultural Research Centre Nyngan – Nyngan Museum and Mid-State Shearing Shed
5	Nyngan to Cobar	Travel to Cobar – Discover the mining heritage at the Great Cobar Heritage Centre and Fort Bourke Hill Lookout.
6	Cobar to Bourke	Cobar Regional Park Mount Grenfell Historic Site – Explore the indigenous rock art site near Cobar Bourke – Visit the Back O'Bourke Exhibition Centre and take a paddleboat cruise on the Darling River.
7	Bourke to Walgett	Brewarrina – Aboriginal Fish Traps

Figure 69 - Three Rivers and Macquarie Marshes Run Route (Table)

The Natural Highlights on the Route include:

- Macquarie Marshes
- Macquarie Valley trails
- Pilliga Forest
- Mount Grenfell Historic Site



Figure 70 - Three Rivers and Macquarie Marshes Run Route

Nominal Costs:

Phase 1 - Nominal Capital Costs					Total
Capital Costs	Nominally:	Year 0	Year 1	Year 2	
Project & Operations Manager - Tourism (0.5 FTE of Grade 7 equivalent)		\$34,072			\$34,072
Webpace (content, purchase-to-pay, design, hosting, payment service, maintenance contract)		\$15,000			\$15,000
Computer and Software (Microsoft licenses, CANVA)		\$4,200			\$4,200
Graphic Design and Brand Logos		\$2,000			\$2,000
Printing (brochures, fact sheets, information booklets, etc)		\$1,500			\$1,500
Route Signage		\$3,300			\$3,300
Outdoor displays – construction and design (total 8 signs across main locations – overnight stay locations or stops – Walgett, Coonamble, Gulargambone, Warren, Nyngan, Cobar, Bourke, Brewarrina)		\$16,000			\$16,000
Content – 50 hours at \$100 per hour		\$5,000			\$5,000
Nominal Capital Investment		\$81,072			\$81,072
Contingency (10%)		\$8,107			\$8,107
Nominal Total Capital Investment		\$89,179			\$89,179

Figure 71 - Three Rivers and Macquarie Marshes Run Route (Indicative Investment)

Outcomes Achieved from the Three Rivers and Macquarie Marshes Run:

Category	Derived Benefits
Economic Growth and Job Creation	• Increased tourism and subsequent spending in the region (accommodation, food, fuel, services). • Increased demand for services subsequently increases jobs in hospitality, tourism and retail. • Opportunities for business diversification for sustainable operation – tour guides, agritourism, Airbnb's, cultural tours, etc.

Category	Derived Benefits
Infrastructure Development	Increased regional investment to improve roads, signage, rest stops and other infrastructure to support access to the regions.
Environmental Conservation	- Encouraging sustainable tourism practices can lead to the preservation of natural habitats and wildlife. - Increased awareness and education about the importance of conservation. - Preservation and promotion of cultural heritage sites, indigenous art, and historical landmarks.
Regional Additions	- Tourism Infrastructure – Development of visitor centres, information kiosks, and interactive maps to guide tourists through the route. - Outdoor Activities – Development of outdoor recreational activities such as hiking trails, birdwatching tours, camping sites and water sports along the rivers.
Opportunities for Regional Council Revenue	- Entry Fees – Charging entry fees for access to certain sites on Council land. - Collaborate with private businesses to develop tourism infrastructure, such as hotels, restaurants, and recreational facilities. - Tourist Services – Offering services such as guided tours, shuttle services, and equipment rentals, either directly or through partnerships with local businesses. - Ticketed events and festivals to increase visitation. - Tour Packages – Collaboration with travel agencies to create packages that include multiple attraction and services within the region. - Government Grants – State and Federal grants aimed at tourism development, infrastructure improvement, and cultural preservation. - Development Funds – Setting up tourism development funds that attract investment from stakeholders interested in the region's growth. - These funds can be used to support investment in water security infrastructure e.g. bores, off- river storage, etc.

Figure 72 - Three Rivers and Macquarie Marshes Run Route (Indicative Investment)

Responsiveness to Future Scenarios and Uncertainties

An analysis of the impact of potential future scenarios and uncertainties on the implementation and delivery of the project follows.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Economic Recession	- Decreased tourism spending, reducing economic growth and job creation. - Lower investment in infrastructure development. - Reduced community spending and engagement.	- Seek additional funding from state or federal grants. - Adjust project scope to align with reduced budgets. - Focus on low-cost, high-impact activities and infrastructure. - Strengthen partnerships with local businesses to share resources and costs.
Policy and Governance Changes	- Uncertainty in policy direction, affecting strategic planning and resource allocation. - Delays in infrastructure projects due to regulatory changes. - Inconsistent support for tourism development.	- Increased advocacy and engagement with policymakers. - Flexibility in project timelines and milestones to accommodate policy changes. - Regular monitoring of policy developments and proactive adjustments to project plans. - Formation of a policy advisory group to guide the project.

Future Scenario	Effect on Intended Project Outcomes	Changes to Project Implementation or Delivery for Prevention
Technological Advancements	• Variability in the adoption and effectiveness of new technologies. • Potential disparities in access to technology among local businesses.	• Allocate budget for training and capacity building. • Incorporate the latest technologies for water management and infrastructure. • Collaborate with technology providers and researchers. • Develop strategies to ensure equitable access to new technologies for all community members.
Climate Variability	• Reduced tourism due to extreme weather conditions, affecting regional spending. • Damage to infrastructure like roads, signage, rest stops, reducing access. • Increased difficulty in preserving natural habitats and wildlife.	• Increased budget for climate resilient infrastructure. • Contingency planning for extreme weather events. • Regular review and adjustment of project plans to accommodate changing climate conditions. • Investment in flexible, adaptive infrastructure that can adjust to varying conditions.
Increased Fire Risk	• Damage to natural habitats and infrastructure, reducing tourism appeal. • Significant resources diverted to firefighting and recovery, affecting project funding. • Long-term degradation of natural habitats and ecosystems.	• Design and implement fire-resistant on-farm and off-farm infrastructure. • Increased budget for fire management and recovery efforts. • Development of emergency response plans specific to fire risks. • Potential delays and increased costs due to fire-related disruptions.
Health Crises	• Reduced community engagement and tourism due to health concerns. • Increased strain on local healthcare systems. • Higher costs for enduring health and safety standards.	• Inclusion of health and wellness components in the project. • Collaboration with healthcare providers to integrate health services. • Allocation of additional resources for health-related infrastructure and programs. • Flexibility in project timelines to accommodate health crises and ensure community well-being.
Outmigration	• Reduced tourism and subsequent spending in the region (accommodation, food, fuel, services). • Lower demand for services, decreasing jobs in hospitality, tourism, and retail. • Fewer opportunities for business diversification in sustainable operations like tour guides, agritourism, Airbnb's, cultural tours, etc.	• Extended timeline for project delivery due to reduced workforce availability. • Increased costs for attracting and retaining workers. • Implementation of training programs for local workers to fill gaps. • Enhanced marketing and outreach to attract tourists and investors.

Figure 73: - Analysis of the impact of potential future scenarios and uncertainties

Monitoring, Evaluation and Learning – Pillar Implementation

Success measures and indicators that might be used by the Project Steering / Control Group for the project to measure the extent of progress towards the outcomes expressed in the program logic and delivery of the project follow.

Pillar 1: Planning and Monitoring

- Risk Assessments and Scenario Planning.

- Conduct detailed risk assessments to identify potential impacts on tourism infrastructure and activities.

- Develop scenarios for various drought conditions to anticipate challenges and plan responses.

- Advanced Data Analytics

- Use geographical information systems (GIS) to monitor environmental conditions and visitor patterns.

- Analyse data to assess the impact of climate variability on tourist destinations.
- Regular Stakeholder Meetings and Feedback Loops
 - Engage local businesses, community members, and government agencies in regular consultations.
 - Incorporate stakeholder feedback to adapt plans and improve project outcomes.
 - Performance Indicators.
 - Establish KPIs to track the success of tourism initiatives and infrastructure resilience.
 - Use real-time monitoring to adjust strategies as needed.

Pillar 2 : Responding to Drought Events

- Drought Response Plans
 - Develop clear actions and responsibilities for managing water resources during droughts.
 - Ensure plans include maintaining tourist attractions and supporting local businesses.
- Water-Efficient Technologies and Practices
 - Install water-saving devices in tourist facilities.
 - Use drought-tolerant landscaping to maintain aesthetic appeal with minimal water use.
- Alternative Recreational Activities
 - Promote activities in each town that doesn't rely on water e.g. hiking, cultural tours and wildlife viewing.
 - Create flexible infrastructure that can adapt to varying water levels.
- Emergency Communication Strategies
 - Implement communication plans to keep tourists and stakeholders informed about drought conditions and responses.
 - Use digital platforms to provide real-time updates on water availability and tourist site accessibility.

Pillar 3 : Building Future Resilience

- Climate Resilient Infrastructure
 - Invest in flexible, adaptive recreational facilities that can operate under different environmental conditions.
 - Incorporate sustainable design principles to enhance durability and reduce environmental impact.
- Economic Diversification

- Support agri-tourism and other sustainable tourism ventures to reduce dependence on traditional agriculture.
- Encourage local entrepreneurship in tourism-related businesses such as Airbnb and Farm Stays.
- Community Education & Capacity Building
 - Provide training for residents on drought-resilient tourism practices.
 - Promote awareness of sustainable tourism and conservation efforts among visitors and the community.

Monitoring Against Objectives

The applicable objectives of the Future Drought Fund Agreement, and relevant project level indicators to track outcomes and how the project is contributing to drought resilience outcomes follow.

Community Developed RDRP Objectives Addressed:

Objective 1 : Develop the environmental resilience and natural capital of agricultural landscapes.

- o Number of eco-tourism project that incorporate conservation activities (e.g. native species planting, wildlife habitat restoration, adopt-an-animal (funding to farmers), etc).
- o Percentage improvement in soil quality parameters (e.g. water retention capacity) on properties used for agri-tourism. This will ensure that farms with alternate income streams are reinvesting profits to improve their resilience and capacity to remain viable as an agricultural producer in subsequent droughts.
- o Number of tourism businesses adopting sustainable agricultural practices.
- o Number of water conservation features and devices installed in tourism infrastructure e.g. rainfall harvesting systems.

Objective 2: Understand and plan for the region's current and future drought resilience by identifying actions, pathways, and opportunities for mitigation adaptation and improvement.

- o Number of educational programs delivered to residents on diversification of income and development of agritourism businesses.

- o Increase in the number of farm stays, Airbnbs, and eco-tourism experiences offered.
- o Revenue generated from sustainable tourism activities.
- o Percentage increase in tourist visitation to drought-affected areas due to new sustainable tourism options.
- o Percentage increase in local employment in sustainable tourism sectors.

Monitoring, Evaluation and Learning

The following table describes Monitoring, Evaluation and Learning framework for this Plan.

Key Evaluation Questions		
How effectively are the councils integrating drought resilience initiatives into their BAU activities? What measurable progress is being made towards the objectives set within the Initial Resilience Assessments for priority agricultural areas? How are the interventions influencing the community, economic stability, environmental resilience, and infrastructure within the region?		
Projects		
• Long Term Water Security Projects • Telecommunications Strategy • Stronger Communities Program • Sustainable Recreation and Tourism Strategy		
Implementation and Monitoring Framework		
Pillar 1 : Planning and Monitoring	Pillar 2 : Respond to Drought Conditions	Pillar 3 : Building Future Resilience
Councils will embed the Drought Resilience Logic Map within their strategic planning frameworks to ensure a systematic approach to drought monitoring and early warning system deployment. This tool will guide the assessment of initial situations and the alignment of planning efforts with broader resilience goals.	The monitoring process will focus on the effectiveness of response mechanisms activated during drought alerts. This includes evaluating the support provided to identified vulnerable sectors and groups, ensuring rapid and effective aid.	Councils will periodically review and update their strategies to enhance long-term drought resilience based on the feedback and data collected through the Logic Map and other MEL activities. These updates will aim to strengthen the economic, environmental, social, and infrastructural pillars of the region.
Assumptions Underpinning the Implementation of the Plan		
Councils will regularly update and refine MEL processes to align with state and national guidelines.	Stakeholder engagement remains proactive and constructive, ensuring that feedback loops are operational and inform continuous improvement.	Sufficient resources (financial, human, informational) are allocated for the ongoing support of MEL activities.
Key Assumptions Affecting Outputs to 1–2 Year Outcomes		
Early identification and mitigation of drought impacts will stabilize the regional economy and protect vulnerable sectors.	Enhanced infrastructure and community support systems will improve immediate disaster response and recovery capabilities.	Initial community and stakeholder engagement will establish a strong foundation for sustained cooperation and collaboration.
Key Assumptions Affecting Outcomes from 2+ Years		
Long-term planning and regular reassessment of strategies will adapt effectively to changing environmental conditions and emerging economic trends.	Ongoing education and community engagement will elevate the general understanding and proactive management of drought impacts.	Strategic partnerships and investments will continue to evolve, driving innovation and resilience in agricultural practices and broader economic activities.
Continuous Improvement and Reporting		
Progress against the MEL Plan will be reported through regular updates at council meetings and public forums, ensuring transparency and community involvement. (People, Culture, and Community, Economy, Landscape and Natural Environment, Infrastructure and Built Environment)		
Biannual and annual reports will detail the short and long-term impacts of the initiatives, supported by data from the Logic Map and additional quantitative and qualitative metrics.		
Successes and learnings from the pilot year and subsequent phases will inform adjustments in strategies and actions, aligning with the evolving needs of the Northwest region.		
By aligning the Monitoring, Evaluation, and Learning activities with these frameworks, councils will ensure that drought resilience planning is not only integrated into their Business As Usual activities but also dynamically supports the region's ability to manage and adapt to drought conditions effectively.		

Appendices

Appendix 1: Glossary of Key Terms

Absorptive capacity	The ability of individuals and groups to continue without adapting or changing their behaviour in response to environmental and socioeconomic changes (Béné et al., 2012).
Adaptation	Adjustment or modification in natural and/or human systems in response to actual or expected shocks and stresses to moderate harm, reduce vulnerability and/or exploit beneficial opportunities (CSIRO, 2022).
Adaptive capacity	The ability of individuals and groups to adjust and respond to environmental and socioeconomic changes (CSIRO, 2022).
Adaptive governance	Coordinating iterative, flexible and responsive interactions between systems when designing interventions and for their implementation and evaluation.
Catchment	A natural drainage area, bounded by sloping ground, hills or mountains from which water flows to a low point. Flows within the catchment contribute to surface water sources as well as to groundwater sources.
Climate variability	Describes the way key climatic elements, such as temperature, rainfall, evaporation, and humidity, differ from the average over time. Variability can be caused by natural or man-made processes.
Co-design	The process of partnership to develop and formulate project delivery and agreed objectives and needs, using participatory methods. A process of working together utilising generative and explorative processes.
Drought	Drought in general means acute water shortage. Drought is a prolonged, abnormally dry period when the amount of available water is insufficient to meet our normal use (BoM, 2022).
Drought resilience	Means the ability to adapt, reorganise or transform in response to changing temperature, increasing variability and scarcity of rainfall and changed seasonality of rainfall, for improved economic, environmental and social wellbeing (Australian Government Drought Resilience Funding Plan 2020 - 2024).
Economic resilience	The ability of the economy to absorb the economic impact of shocks and stressors without changing the economic status or outcomes (CSIRO, 2022).
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 (CSIRO, 2022).
Environmental water	Water allocated to support environmental outcomes and other public benefits. Environmental water provisions recognise environmental water requirements and are based on environmental, social, and economic considerations, including existing user rights.

Evaporation	The process by which water or another liquid becomes a gas. Water from land areas, bodies of water and all other moist surfaces is absorbed into the atmosphere as a vapour.
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 (CSIRO, 2022).
Gross regional product (GRP)	Gross regional product (GRP) is the total value of the goods and services produced in a regional economy
Groundwater	Water located beneath the surface of the ground in the spaces between sediments and in the fractures of rock formations.
Floodplain	Flat land bordering a river or stream that is naturally subject to flooding and is made up of alluvium (sand, silt and clay) deposited during floods. Floodplain harvesting is the collection or capture of water flowing across floodplains.
Inflows	The amount of water coming into a surface water source or groundwater source.
Intervention options	Alternative or complementary actions, projects, programs, policies, initiatives and investments that are planned to bring about change in the system (Maru et al., 2017).
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.
Public Good	For infrastructure and other capital investment or on-ground works, ‘public good’ is taken to mean that the project would not otherwise be able to recover costs—for example, utility pricing— and should deliver significant spill-over benefits for society and the economy, well beyond those derived by private beneficiaries (Australian Government Drought Resilience Funding Plan 2020 - 2024).
Resilience	The ability of a system to absorb a disturbance and reorganise so as to maintain the existing functions, structure and feedbacks (Walker et al., 2004). Also see general resilience, specified resilience, economic resilience, environmental resilience and social resilience.
Resilience planning	Resilience planning is about more than developing a plan to improve the state and trajectory of a region. Resilience plans focus on developing the capacities of a system to absorb, adapt, or transform, and to deal with specified stresses or shocks, such as drought, as well as unspecified stresses or shocks. (Adopted from the CSIRO Drought Resilience Planning, Independent Review Guide).
Resilient regional centres	Means water users are able to withstand extreme events, such as drought and flood, and/or adapt and respond to changes caused by extreme events.
Risk	The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems (IPCC, 2020).

Shock	Sudden, short-term events that threaten a city (or region). Examples include major storms, floods, bush fires, heatwaves, disease outbreaks, terrorism and cyber-attacks' (Resilient Sydney, 2018).
Social resilience	The ability of the human society to cope with a diverse range of shocks and stressors while maintaining existing social and community functions (CSIRO, 2022).
Stochastic climate datasets	Stochastic climate datasets are extended climate sequences that are synthesised using statistical methods applied to observed data of rainfall and evapotranspiration and can include paleoclimatic data. These extended sequences include a more complete sample of climate variability, part of which describes more severe drought sequences.
Storage	A state-owned dam, weir or other structure which is used to regulate and manage river flows in the catchment. There are also a range of storages owned by local water utilities. Also refers to the water bodies impounded by these structures.
Stormwater	Flow generated from rainfall falling on hard (impervious) surfaces.
Stressor	An event that occurs gradually over a timeframe that causes an adverse effect, e.g., drought (CSIRO, 2022).
Surface water	All water that occurs naturally above ground including rivers, lakes, reservoirs, creeks, wetlands, and estuaries.
Systems	The interaction of processes, networks and inter-dependencies across a complex 'whole'.
Theory of change	Refers to theories, causal mechanisms and assumptions that explain how and why outcomes and impacts will be achieved through use, implementation and production of proposed inputs, activities and outputs (Maru et al., 2018).
Trends	Major global or regional influences that have driven change in the past and are expected to shape change into the future (Taylor et al., 2017).
Threshold	The point at which a change in a level or amount a controlling variable causes a system to shift to a qualitatively different regime. Also referred to as a tipping point (Folke et al., 2010).
Transform	The process of radically changing or building a new system with different structure, functions, feedbacks and identity (Folke et al., 2010).
Transpiration	The process where plants absorb water through their roots and then evaporate water vapour through pores in their leaves.
Trigger point	A pre-agreed situation or event, that when met, activates a management intervention. Trigger points are usually defined in the planning phase (Wise et al., 2014).
Water security	In the context of regional water strategies refers to the acceptable chance of not having town water supplies fail. This requires community and government to have a shared understanding of what is a 'fail event' (for example, no drinking water or unacceptable water quality) and the level of acceptability they will pay for.

Appendix 2: References

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Appendix 3: Background Context and Key Inputs

The background contexts (BC), review of prior strategies, and relevance of Global academic and government strategies and reports considered, in the identification of existing drought initiatives, within NSW, Australia and International regional and rural contexts, for potential implementation within the regions considered in this plan follow.

Background Contexts

1. (BC.1) Australian Government Drought Response, Resilience and Preparedness Plan.

On 12 December 2018 the Australian, state and territory governments signed the National Drought Agreement (NDA), replacing the 2013 agreement. The NDA commits the Australian, state and territory governments to develop policies and programs that position farmers to plan for and manage risk; and prepare for, manage and recover from drought. It is in place until 30 June 2024 and will be reviewed approximately two years before expiry.

The Australian Government Drought Response, Resilience and Preparedness Plan, which in effect arises from the NDA and:

- has a prime focus on preparing farm businesses and rural communities to manage drought in pursuit of a prosperous and sustainable future.
- is supported by the Future Drought Fund Act 2019.

The purpose of the Fund is to enhance the public good by building drought resilience. This means the benefits generated by the funding must be able to be accessed and/or shared by many (public benefits), rather than be captured solely by individual businesses or industries solely for private commercial gain (private benefits). It also means the benefits achievable from the funding should outweigh the costs.

The Fund has three interconnected strategic priorities and objectives focused economic resilience, environmental resilience and social resilience of communities.

The *Drought Resilience Funding Plan 2020 to 2024* sets out an approach for making arrangements or grants in relation to drought resilience, or entering into agreements in relation to such grants, under the Future Drought Fund. A Monitoring, Evaluation and Learning (MEL) Framework has been developed to outline the rationale, scope and approach for monitoring and evaluating the activities carried out under the Funding Plan, and for the generation and sharing of knowledge gained through funded activities about how to build drought resilience.

The Australian Government, within the October 2022-23 Budget Measures is:

- providing a further \$94.5 million over six years from 2022-23 to consolidate the Drought Resilience Funding Plan in place under the Future Drought Fund Act 2019.
- investing \$6.6 million over two years from 2022-23 to support work to prepare for future droughts. This includes work to review and revise the National Drought Agreement with the states and territories and the Commonwealth Drought Plan.

2. (BC.13) Baseline Drought – Developing a Baseline Understanding of Farmer and Community Perceptions of Drought.

3. (BC.14) Building Climate Resilience Through Nature Based Solutions in Europe.

4. (BC.15) Climate Change in the North-West and Local Land Services Region.

5. (BC.16) Coordinated Strategic Plan to Advance Desalination for Enhanced Water Security.

6. (BC.17) Draft Inquiry Report – Government Drought Support.

7. (BC.18) Enhanced Aquifer Recharge of Stormwater in the United States: State of the Review Science.
8. (BC.19) EU Strategy on Adaptation to Climate Change.
9. (BC.20) Far West Enabling Regional Adaptation Report.
10. (BC.21) Final Report – Support for Drought Affected Communities in NSW.
11. (BC.22) Interim Report – Support for Drought Affected Communities in NSW.
12. (BC.23) Macquarie – Castlereagh Regional Water Strategy.
13. (BC.24) Managing and Preparing for Drought.
14. (BC.25) Regional Strengths and Infrastructure Gaps Regional Analysis: NSW.
15. (BC.26) Regional Water Strategy: Western Implementation Plan.
16. (BC.27) Resilience Strategies for Drought.
17. (BC.28) Social and Economic Impacts of Drought on Farm Families and Rural Communities.
18. (BC.29) Strengthening Agricultural Resilience in the Face of Multiple Risks – Resilience to Drought in Australia.
19. (BC.30) The Role of Conservation Programs in Drought Resilience.
20. (BC.31) Water Efficiency and Infrastructure Technical Brief.

The key inputs considered, in identifying the drought resilience projects included the following

21. Central West and Orana Climate Change Snapshot: NSW Government - Office of Environment and Heritage 2014.
22. Central West and Orana Regional Plan 2036: NSW Government - Planning and Environment 2017.
23. Central West and Orana Regional Plan 2041: NSW Government - Planning and Environment 2022.
24. Coonamble Shire Council Drought Management Plan: Coonamble Shire Council 2022.
25. Lower Macquarie Water Utilities Alliance: A Quantum Leap in Local Government Thinking.
26. Macquarie – Castlereagh Long Term Water Plan: NSW Government - Planning, Industry and Environment 2020.
27. NSW Business Chamber Drought Survey 2018: NSW Business Chamber 2018.
28. Regional Water Strategy – Macquarie Castlereagh: NSW Government - Planning and Environment 2023.
29. Lower Macquarie Water Utilities Alliance.
30. Warren Shire Economic Development Strategy and Action Plan: Warren Shire Council 2023.
31. Western Enabling Regional Adaptation - Central West and Orana Region Report.
32. NSW Government's Regional Economic Development Strategies (REDS) for each of the Functional Economic Regions (FER).
33. Council Community Strategic Plans.
34. Western Economic Development Strategy and Action Plan.
35. Water and Drought Security Report.

Desktop Review and Strategic Alignment

The review of prior strategies focused on ensuring the alignment of strategic priorities and projects for this Plan, with the Western Regional Water Strategy and the Macquarie Castlereagh Water Strategy. Below are the region-specific documents, plans and reports that were assessed, analysed and incorporated into this Plan.

Strategy (Year)	Region (Organisation)	Description	Assessment of past drought impact?	Links to Regional Water Strategy	Addresses Regional Characteristics?	Addresses future shocks or uncertainties?
Central West and Orana Climate Change Snapshot (2014)	Central West and Orana [NSW Government – Office of Environment and Heritage]	The report provides detailed projections on the impacts of climate change in the Central West and Orana regions, focusing on temperature, rainfall, and fire weather changes. This document serves as a critical resource for understanding climate trends and preparing for future conditions.	No	No	Yes – Location, population, natural ecosystems e.g. Macquarie Marshes.	Yes – Climate Projections (temperature, rainfall, fire weather).
Central West and Orana Regional Plan 2036 (2017)	Central West and Orana [NSW Government – Planning and Environment]	The plan outlines the vision, goals, and actions for the Central West and Orana region by 2036, focusing on economic diversification, environmental sustainability, infrastructure development, and community well-being.	Yes – The plan discusses the impacts of past droughts on agriculture and water resources.	Yes – Challenges: Reducing water supply risks, maintaining and improving river health, supporting a growing regional economy; Priorities: Safe water supply, natural system resilience.	Yes – Describes social, economic, and environmental characteristics, including population, land use, natural resources, and economic sectors.	Yes – Addresses future uncertainties related to climate change, economic transitions, population growth, and infrastructure needs.
Central West and Orana Regional Plan 2041 (2022)	Central West and Orana [NSW Government – Planning and Environment]	The plan provides a strategic framework for the region, focusing on sustainable growth, economic diversification, infrastructure development, and community well-being up to the year 2041.	Yes – Discusses impacts of past droughts on water resources and agriculture.	Yes – Challenges: Reducing water supply risks, supporting a growing regional economy; Priorities: Safe water supply.	Yes – Describes social, economic, and environmental characteristics, including population, land use, natural resources, and economic sectors.	Yes – Addresses future uncertainties related to climate change, economic transitions, population growth, infrastructure needs, and the shift to renewable energy sources.
Coonamble Shire Council Drought Management Plan (2022)	Coonamble [Coonamble Shire Council]	The plan provides a framework to assist in handling future droughts, ensuring a basic water supply is available to all users. It includes monitoring strategies, drought activation triggers, and communication plans to manage water demand during drought conditions.	Yes – Discusses past droughts, including the Millennium Drought (2001- 2009) and the drought from 2016-2019.	Yes – Challenges: Climate resilience, reducing water and supporting a growing regional economy; Priorities: Safe water supply, efficient water use.	Yes – Describes social, economic, and environmental characteristics, including water supply systems, population served, and significant water users.	Yes – Addresses future uncertainties related to climate change, increased water demand, and infrastructure challenges, including the need for water conservation and management strategies.

Strategy (Year)	Region (Organisation)	Description	Assessment of past drought impact?	Links to Regional Water Strategy	Addresses Regional Characteristics?	Addresses future shocks or uncertainties?
NSW Business Chamber Drought Survey (2018)	NSW [NSW Business Chamber]	The survey evaluates the impact of drought on businesses across various regions in NSW, highlighting revenue losses, cash flow issues, staffing reductions, and concerns about business viability. It provides an overview of how different industries and regions are affected by the drought conditions.	Yes – Provides detailed analysis of the impact of the current drought on businesses, including economic and operational challenges.	No – The survey focuses on business impacts and does not directly link to the regional water strategy's challenges or priorities.	Yes – Describes social and economic characteristics, including revenue impact, cash flow challenges, staffing issues, and regional economic weaknesses.	Yes – Addresses future uncertainties related to prolonged drought conditions, economic stability, business viability, and potential need for business closures or scaling back operations.
Regional Water Strategy – Macquarie–Castlereagh (2023)	Macquarie – Castlereagh Region [NSW Government – Planning and Environment]	The strategy identifies key water-related challenges in the Macquarie–Castlereagh region and outlines actions to address them, ensuring secure, reliable, and resilient water supplies for regional and remote communities over the next 20 years and beyond.	Yes – The strategy addresses the impacts of past droughts on water availability, agriculture, and community well-being.	Yes – The report sets the priorities and challenges in the region relating to water security and drought.	Yes – The strategy describes social, economic, and environmental characteristics of the region, including water use, climate snapshot, and cultural connections to Country.	Yes – The strategy addresses future uncertainties related to climate change, reduced water availability, and the need for climate adaptation for industry and communities.
Warren Shire Economic Development Strategy and Action Plan (2023)	Warren [Warren Shire Council]	The strategy and action plan aim to progress, evaluate, monitor, and report on economic development opportunities within Warren Shire, focusing on tourism, liveability, infrastructure development, and business growth.	Yes – Discusses past drought impacts on agriculture and the broader economy.	Yes – Challenges: Reducing water supply risks, supporting a growing regional economy; Priorities: Safe water supply, natural system resilience, efficient water use.	Yes – Describes social, economic, and environmental characteristics, including population demographics, economic sectors, and infrastructure.	Yes – Addresses future uncertainties related to economic transitions, population changes, infrastructure needs, and environmental challenges, including climate change.
Western Enabling Regional Adaptation – Central West and Orana Region Report (2017)	NSW Government – Office of Environment and Heritage	The report outlines vulnerabilities to climate change in the Central West and Orana region and identifies adaptive strategies to build resilience across various sectors, including agriculture, water management, infrastructure, and community health.	Yes – Discusses impacts of past droughts on water resources, agriculture, and community well-being.	Yes – Challenges: Climate resilience, water security, sustaining regional economies; Priorities: Integrated water management, enhancing adaptive capacity, fostering resilient communities.	Yes – Describes social, economic, and environmental characteristics, including population demographics, land use, natural resources, and economic sectors.	Yes – Addresses future uncertainties related to climate change, water availability, economic stability, infrastructure resilience, and community health and well-being.

Relevance of Global academic and government strategies and reports

Global academic and government derived strategies and reports were also reviewed, with their relevance assessed against the strategic priorities and objectives identified by regional stakeholders the initial round of consultation for this plan.

Strategy (Year)	Region (Organisation)	Enduring Level of Supply for Regional and Rural towns	Coordination Across Government levels	Management of Extreme Events	Rural Water Conservation & Efficiency	Access to additional Water Entitlements or Alternate Measure Utilisation	Improved Water Literacy, Drought Education & Greater Community Engagement	Enhanced Financial Support for Drought Affected Communities	Reduced Skills Shortage for Effective Water Management	Enhanced Understanding & Management of Climate Risk
Relevant to the Strategic Objectives and Priorities of the RDRP (Yes [Y]/ No [N])										
Australian Government Drought Response Plan (2019)	Australia [Australian Government – Department of Agriculture]	Y	N	N	Y	N	Y	Y	N	Y
Baselining Drought - Developing a Baseline Understanding of Farmer and Community Perceptions of Drought (2022)	Southern NSW [Southern NSW Innovation Hub – Sustainable Agriculture, Landscapes and Communities]	Information relevant to challenges only.								
Building Climate Resilience Through Nature Based Solutions in Europe (2022)	Europe [Academic Journal – Climate Risk Management]	N	Y	N	N	N	N	N	N	Y
Climate Change in the North-West and Local Land Services Region (2015)	North West Region [NSW Government – Local Land Services North West]	N	N	N	N	N	N	N	N	Y

Strategy (Year)	Region (Organisation)	Enduring Level of Supply for Regional and Rural towns	Coordination Across Government levels	Management of Extreme Events	Rural Water Conservation & Efficiency	Access to additional Water Entitlements or Alternate Measure Utilisation	Improved Water Literacy, Drought Education & Greater Community Engagement	Enhanced Financial Support for Drought Affected Communities	Reduced Skills Shortage for Effective Water Management	Enhanced Understanding & Management of Climate Risk
Relevant to the Strategic Objectives and Priorities of the RDRP (Yes [Y]/ No [N])										
Draft Inquiry Report – Government Drought Support (2008)	Australia [Australian Government – Productivity Commission]	N	N	N	N	N	N	Y	N	Y
Enhanced Aquifer Recharge of Stormwater in the United States: State of the Review Science (2021)	US [US EPA]	N	N	N	N	Y	N	N	N	N
EU Strategy on Adaptation to Climate Change (2021)	Europe [European Commission]	N	N	N	Y	Y	N	N	N	Y
Far West Enabling Regional Adaptation Report (2017)	Far West NSW [NSW Government- Office of Environment and Heritage]	N	N	Y	N	N	N	N	N	Y
Final Report - Support for Drought Affected Communities in NSW (2021)	NSW [Legislative Assembly Committee on Investment, Industry and Regional Development]	N	Y	N	N	N	N	Y	N	N

Strategy (Year)	Region (Organisation)	Enduring Level of Supply for Regional and Rural towns	Coordination Across Government levels	Management of Extreme Events	Rural Water Conservation & Efficiency	Access to additional Water Entitlements or Alternate Measure Utilisation	Improved Water Literacy, Drought Education & Greater Community Engagement	Enhanced Financial Support for Drought Affected Communities	Reduced Skills Shortage for Effective Water Management	Enhanced Understanding & Management of Climate Risk
Relevant to the Strategic Objectives and Priorities of the RDRP (Yes [Y]/ No [N])										
Interim Report - Support for Drought Affected Communities in NSW (2020)	NSW [Legislative Assembly Committee on Investment, Industry and Regional Development]	N	N	N	N	N	N	Y	N	N
Macquarie - Castlereagh Regional Water Strategy (2023)	NSW [NSW Government - Department of Planning and Environment]	Y	Y	Y	Y	Y	Y	N	N	N
Managing and Preparing for Drought (2018)	NSW [NSW Government - Department of Primary Industries]	N	N	N	N	N	Is a literacy resource to aid Regional and Rural Farmers.	N	N	Provides strategies for individual farmers and businesses to manage drought.
Regional Strengths and Infrastructure Gaps Regional Analysis: NSW (2022)	NSW [Australian Government - Infrastructure Australia]	N	N	N	N	N	Y	N	N	N
Regional Water Strategy: Western Implementation Plan (2022)	Western NSW [NSW Government- Department of Planning and Environment]	N	Y	Y	Y	N	Y	N	Y	N

Strategy (Year)	Region (Organisation)	Enduring Level of Supply for Regional and Rural towns	Coordination Across Government levels	Management of Extreme Events	Rural Water Conservation & Efficiency	Access to additional Water Entitlements or Alternate Measure Utilisation	Improved Water Literacy, Drought Education & Greater Community Engagement	Enhanced Financial Support for Drought Affected Communities	Reduced Skills Shortage for Effective Water Management	Enhanced Understanding & Management of Climate Risk
Relevant to the Strategic Objectives and Priorities of the RDRP (Yes [Y]/ No [N])										
Resilience Strategies for Drought (2018)	US [Center for Climate and Energy Solutions]	N	N	N	Y	N	N	N	N	N
Social and Economic Impacts of Drought on Farm Families and Rural Communities	Australia [Australian Institute of Family Studies]	Information relevant to challenges only.								
Strengthening Agricultural Resilience in the Face of Multiple Risks - Resilience to Drought in Australia (2020)	Australia [Organisation for Economic Co-operation and Development]	N	N	N	Y	N	N	N	N	Y
The Role of Conservation Programs in Drought Resilience (2013)	US [United States Department of Agriculture]	N	N	N	Y	N	N	N	N	N
Water Efficiency and Infrastructure Technical Brief (2016)	US [US EPA]	N	N	N	Y	N	N	N	N	N

Appendix 4: Long List of Projects

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation 'Possible Projects' (016)
Coonamble LGA												
1	Council sponsored Off-Farm Employment	Council engages local community members to conduct road maintenance activities, instead of engaging outside contractors	Economy	NSW Future Ready Regions Strategy - Stronger communities & diverse regional economies	Economic - Investment in road maintenance remains within the community Social - Increased community cohesion, reduced demand for mental health services given off-farm income avenue. Environmental - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Modifying aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	3 - 6 Months	Regional NSW	To be determined	Actions required: 1. Identify the road maintenance activities that local community members could be engaged for. 2. Develop a contracting /employment model and agreements. 3. Discuss with Transport for NSW potential for road maintenance activities during times of drought. 4. At a suitable point in time, seek Expressions of Interest from the community for participation in road maintenance activities. 5. Initial road maintenance program. Supporting Drought Resilience Technical Studies: Nil.	1
2	Stronger communities program	Series of activities of events to promote social cohesion and connectiveness that Councils initiate during periods of droughts (staff paid to organise, conduct and clean up)	Social	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Initiatives would contribute to an off-farm income stream. Social - Increased community cohesion, reduced demand for mental health services. Environmental - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintaining aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	2 - 3 Months	Regional NSW	To be determined	Actions required: 1. In conjunction with Community organisations develop a program of activities. 2. Develop a plan for the conduct of each activity. 3. Deliver the scheduled activities. Supporting Drought Resilience Technical Studies: Nil.	6

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
3	Water security - Groundwater	Increase the number of water bores for stock and domestic use and dust suppression for road maintenance / construction activities. The proving of ground water resources (quality and flow) and installation of standpipes (connected to a supervisory control system to provide a capability for standpipes to be switched on / off, to cross level usage between locations to adjust for changes in quality and flow rates) in up to five locations, to provide greater resilience for the agriculture and town water supplies of local towns.	Economy Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of bores on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transforming aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund	Pre- Construction - 16 months Construction - 6 months	NSW DPE- Water Agriculture NSW NSW Farmers association Identified Agriculture Industries	Yes	Actions required: 1. Conduct Drought Resilience technical studies. 2. Detailed design of selected bore locations. 3. Detailed cost estimate. 4. Complete full business case. 5. Funding applications and approvals. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Conduct a ground water resource study aligned to Agriculture use. 2. Prove (drill and assess) bores (quality and flow) in an agreed number of locations (e.g. five).	7
Warren LGA												
1	Telecommunications Security	Improve telecommunications connectivity (4G and 5G) in the region to support business and agricultural productivity	Economy		Economic - Provides for the continued operation of agriculture and businesses that rely on telecommunications, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are telecommunications options to support their business operations.	Planning and Monitoring (Pillar 1) Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Modifying aspects of the Region to transform and improve resilience to drought)			NSW & Federal Governments. Councils	Yes	Actions required: 1. Initiate discussions with NSW State Government and Commonwealth Departments. Supporting Drought Resilience Technical Studies: Nil	11

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
2	Livestock Nutrition Program	Combination of: - two workshops (circa 2-hrs each) about livestock nutrition principles, and nutrition strategies. - 6 to 12 hours (one-on-one) consultations for each participating farmer.	Economy	Coonamble Community Strategic Plan - Strategy 10 NSW Future Ready Regions Strategy - Stronger primary industries prepared for drought	Economic - Improved ability to maintain livestock nutrition Social - Improved resilience of farmers in managing through drought. Environmental - Not directly identified.	Planning and Monitoring (Pillar 1) Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Future Drought Fund NSW Regional Growth Fund	Program development 3 - 6 months. Program delivery 4 - 6 months.	Regional NSW Cth Department of Agriculture Agriculture NSW NSW Farmers Association	To be determined	Actions required: 1. Identify underpinning funding agency. 2. Call for Expressions of interest to engage a Veterinary / Agri service provider. 3. Design program construct, constraints, participation agreements (content, duration, numbers of participants, number of programs to be delivered, agreement requirements). 4. Advertise the program and Call for participants. 5. Schedule and delivery program(s). Supporting Drought Resilience Technical Studies. Nil	15
3	Rural Financial Program	Provision of business mentoring to support 'proactive decision making' (livestock trading, decision making -based on facts and figures) (Workshops / one-on-one)	Economy	NSW Future Ready Regions Strategy - Stronger primary industries prepared for drought	Economic - Improved ability to maintain livestock nutrition Social - Improved resilience of farmers in managing through drought. Environmental - Not directly identified.	Planning and Monitoring (Pillar 1) Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Department of Agriculture, Fisheries and Forestry	Immediate	Regional NSW NSW Rural Financial Counselling service	To be determined	Actions required: 1. Identify topics to be covered (e.g. Succession planning Farm budgeting Forecasting and cash flow analysis Farm debt mediation Bank reviews and relationships Help refinancing debt Access government assistance and rural loans Understand farm loan interest rates Understand your financials \Build a business plan Identify areas of risk Benchmarking Referrals Debt relief and negotiation) 2. Develop a schedule. 3. Advertise program and call for participants. 4. Deliver the program.	15 & 33

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
4	Council sponsored Off-Farm employment	Council engages local community members to conduct road maintenance activities, instead of engaging outside contractors	Economy	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Investment in road maintenance remains within the community Social - Increased community cohesion, reduced demand for mental health services given off-farm income avenue. Environmental - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	3 - 6 Months	Regional NSW	To be determined	Actions required: 1. Identify the road maintenance activities that local community members could be engaged for. 2. Develop a contracting /employment model and agreements. 3. Discuss with Transport for NSW potential for road maintenance activities during times of drought. 4. At a suitable point in time, seek Expressions of Interest from the community for participation in road maintenance activities. 5. Initial road maintenance program. Supporting Drought Resilience Technical Studies: Nil.	17
5	Stronger communities program	Series of activities of events to promote social cohesion and connectiveness that Councils initiate during periods of droughts (staff paid to organise, conduct and clean up)	Social	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Initiatives would contribute to an off-farm income stream. Social - Increased community cohesion, reduced demand for mental health services. Environmental - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	2 - 3 Months	Regional NSW	To be determined	Actions required: 1. In conjunction with Community organisations develop a program of activities. 2. Develop a plan for the conduct of each activity. 3. Deliver the scheduled activities. Supporting Drought Resilience Technical Studies: Nil.	24

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
6	Water security - Groundwater	Increase the number of water bores for stock and domestic use and dust suppression for road maintenance / construction activities. The proving of ground water resources (quality and flow) and installation of standpipes (connected to a supervisory control system to provide a capability for standpipes to be switched on / off; to cross level usage between locations to adjust for changes in quality and flow rates) in up to five locations; to provide greater resilience for the agriculture and town water supplies of local towns.	Economy, Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of bores on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transform aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund	Pre- Construction - 16 months Construction 6 months	NSW DPE - Water Agriculture NSW NSW Farmers association Identified Agriculture Industries	Yes	Actions required: 1. Conduct Drought Resilience technical studies. 2. Detailed design of selected bore locations. 3. Detailed cost estimate. 4. Complete full business case. 5. Funding applications and approvals 6. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Conduct a ground water resource study aligned to Agriculture use. 2. Prove (drill and assess) bores (quality and flow) in an agreed number of locations (e.g. five).	25
7	Water Security	Remediation of the existing Gin Gin Weir to provide a secondary storage capacity. (Remediation options study, assessment to dam safety guidelines, and remediation of the storage)	Economy, Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of water usage on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transform aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund NSW Safe and Secure Water program	Pre- Construction - 24 months Construction 12 months	NSW DPE - Water NSW Dams Safety Agriculture NSW NSW Farmers association Australian Government National Water Grid	To be determined	Actions required: 1. Geotechnical investigation. 2. Conduct Drought Resilience technical studies. 3. Detailed design. 4. Detailed cost estimate. 5. Complete full business case. 6. Funding applications and approvals. 7. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Geo-technical and raw water remediation options study. 2. Community consultation.	26

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
8	Water security -	Increase the storage of the Burrendong Dam by an additional 20%	Economy, Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources 2023/2024 Operational Plan & Estimates	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of water usage on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transform aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund NSW Safe and Secure Water program	Pre- Construction - 36 months Construction 18 months	NSW DPE - Water NSW Dams Safety Agriculture NSW NSW Farmers association Australian Government National Water Grid	To be determined	Actions required: 1. Geotechnical investigation. 2. Conduct Drought Resilience technical studies. 3. Detailed design. 4. Detailed cost estimate. 5. Complete full business case. 6. Funding applications and approvals. 7. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Geo-Technical and raw water remediation options study. 2. Community consultation.	26
9	Water security -	Establish storage at or before the Nyngan off-take to secure the water supply to the Warren Shire (industry, environment, irrigators, domestic supply)	Economy, Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of water usage on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transform aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund NSW Safe and Secure Water program	Pre- Construction - 24 months Construction 12 months	NSW DPE - Water NSW Dams Safety Agriculture NSW NSW Farmers association Australian Government National Water Grid	To be determined	Actions required: 1. Geotechnical investigation. 2. Conduct Drought Resilience technical studies. 3. Detailed design. 4. Detailed cost estimate. 5. Complete full business case. 6. Funding applications and approvals. 7. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Geo-Technical and raw water remediation options study. 2. Community consultation.	26

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
10	Water Security - Supply Channels	Lining of supply channels - Albert Prest Channel and piping of Tinton Mine at Nyngan to reduce evaporation	Economy, Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources 2023/2024 Operational Plan & Estimates	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transform aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund	Pre- Construction - 24 months Construction 12 months	NSW DPE - Water NSW Dams Safety Agriculture NSW NSW Farmers association	To be determined	Actions required: 1. Conduct Drought Resilience technical studies. 2. Detailed design. 3. Detailed cost estimate. 4. Complete full business case. 5. Funding applications and approvals. 6. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Community consultation.	26
11	Chlorination System Upgrades for Warren, Neverite, and Collie	The project aims to upgrade the chlorination systems in Warren, Neverite, and Collie to best practice levels to ensure the delivery of a safe and adequately priced water supply.	Economy, Environmental	2023/2024 Operational Plan & Estimates	Social : Improved water quality can lead to better health outcomes for resident especially during drought conditions when water quality may deteriorate. Economic : Ensuring a reliable and safe water supply supports the local economy, including agriculture, by maintaining productivity and reducing potential disruptions during drought periods. Environmental : Best practice chlorination systems can minimise the environmental impact of water treatment processes, helping to maintain ecological balance, especially during the stress of drought.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)		Construction 6 months	NSW DPE - Water Council Community	To be determined	Actions required: Installation of chlorination systems to meet best practice standards.	NA

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
12	Water Security - Reservoir Drop Tests & Leakage Rectification	Carry out reservoir drop tests in order to check the level of leakage in the pipe networks and rectify any significant leakage.	Economy, Environmental	NSW Future Ready Regions Strategy - Sustainable, secure and healthy water resources	Economic: Identifying and repairing leaks to ensure more efficient use of water for agricultural and business operations, thereby preserving economic stability during drought conditions. Social: Ensuring the integrity of the water supply network builds community trust in water management and provides reassurance that water resources are being maintained effectively. Environmental: Detecting and rectifying leaks reduces water waste, ensuring that scarce water resources are preserved for essential ecological functions and habitats, particularly during drought periods.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund NSW Safe and Secure Water program	Pre- Construction - 6 months Construction 12 months	NSW DPE - Water Council Community	To be determined	Actions required: 1. Investigation. 2. Detailed design. 3. Detailed cost estimate. 4. Funding applications and approvals. 5. Tender for construction or conduct rectification works by council. Supporting Drought Resilience Technical Studies: 1. Geo-Technical and raw water remediation options study. 2. Community consultation.	
13	Sustainable Recreation and Tourism Strategy Development	Develop and implement a tourism strategy to facilitate sustainable recreational access to rivers and marshes, enhancing drought resilience through community-involved planning. This includes developing recreational infrastructure that is adaptable to water levels and promoting activities suitable for dry seasons, thus supporting local economies and ecological preservation during varying climate conditions.	Social, Economic, Environmental	Warren Shire Delivery Program 2022 - 2026	Economic: supports tourism during drought Social: maintains community well-being Environmental: sustainable management of natural resources	Build future resilience (Pillar 3) (Modifying aspects of the Region to improve resilience to drought)		6-12 Months	Council (s) Tourism industry stakeholders Environmental Agencies	To be determined	Actions required: Develop drought-adaptive visitor destination management plan, Development of river locations for low-water recreation	

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
14	Smart Water Metering	Conducting an investigation and installing smart water meters across the town to monitor and manage water usage effectively, ensuring adherence to licensed water allocations and promoting conservation, especially during drought conditions.	Economy, Environmental	Warren Shire Delivery Program 2022 - 2026	Environmental: optimises water usage, reduces waste Economic: potentially reduces costs for consumers and the shire Social: promotes community awareness of water usage and conservation	Planning and Monitoring (Pillar 1) (Modifying aspects of the Region to improve resilience to drought)		Investigation: 6 months Installation: 12 months	Council Community Industry	To be determined	Actions required: 1. Investigation into smart meter technology 2. Detailed cost estimate. 3. Funding applications and approvals. 4. Installation process	NA
Bogan LGA												
1	Stronger communities program	Series of activities of events to promote social cohesion and connectiveness that Councils initiate during periods of droughts (staff paid to organise, conduct and clean up)	Social	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Initiatives would contribute to an off-farm income stream. Social - Increased community cohesion, reduced demand for mental health services. Environmental - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	2 - 3 Months	Regional NSW	To be determined	Actions required: 1. In conjunction with Community organisations develop a program of activities. 2. Develop a plan for the conduct of each activity. 3. Deliver the scheduled activities. Supporting Drought Resilience Technical Studies: Nil.	27
2	Tax Incentives / Economic Zone	Introduction of tax incentives for all local industries and businesses to support economic stability and prevent population decline in rural and remote regions.	Economy	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Provides for the continued operation of agriculture and businesses within the community to sustain their economic activity.	Build future resilience (Pillar 3) (Modifying aspects of the Region to improve resilience to drought)	Not Applicable		Australian Government NSW Government	No	Actions required: 1. Initiate discussions with NSW State Government and Commonwealth Departments. Supporting Drought Resilience Technical Studies: Nil	30

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation 'Possible Projects' (016)
3	Tax Incentives / Economic Zone - Local Spend Targets	Implementation of local spend targets for state or federal infrastructure projects to ensure that investments remain within the local economies of rural and remote regions.	Economy	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Provides for the continued operation of agriculture and businesses within the community, to sustain their economic activity	Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	Not Applicable		Australian Government NSW Government	No	Actions required: 1. Initiate discussions with NSW State Government and Commonwealth Departments. Supporting Drought Resilience Technical Studies: Nil	NA
4	Water Security Plan	Develop a regional water security infrastructure plan for the Macquarie River	Economic, Environmental			Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Modifying aspects of the Region to improve resilience to drought)	Australian Government national Water Grid NSW Regional Growth Fund		Australian Government national Water Grid NSW Regional Growth Fund Murray River Basin Authority	To be determined	Actions required: 1. Conduct Drought Resilience technical studies. 2. Detailed cost estimate (business case / funding application. 3. Development of the plan. 4. Discussion with stakeholders and community. 5. Finalisation of plan. 6. Identification of business case requirements for subsequent priority initiatives / plans / actions. 7. Progression of business cases / Implementation actions. Supporting Drought Resilience Technical Studies: 1. Conduct a water demand study aligned to Agriculture and domestic uses. 2. Community consultation to facilitate concept for the plan, prior to detailed development.	32

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation 'Possible Projects' (016)
5	Water Security Infrastructure for Nyngan	Continuation of infrastructure projects aimed at ensuring the water supply security for Nyngan	Economic, Environmental	Draft Delivery Program - 2022 - 2025	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of water usage on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Modifying aspects of the Region to improve resilience to drought)	NSW Future Drought Fund (for technical studies) Australian Government national Water Grid NSW Regional Growth Fund	Pre- Construction - 24 months Construction 12 months	NSW DPE - Water NSW Dams Safety Agriculture NSW NSW Farmers association Council	To be determined	Actions required: 1. Conduct Drought Resilience technical studies. 2. Detailed design. 3. Detailed cost estimate. 4. Complete full business case. 5. Funding applications and approvals. 6. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Community consultation.	NA
6	Nyngan to Cobar Pipeline Project (Stage 2)	Albert Priest Channel Improvement and Pipeline Augmentation Project (Nyngan to Cobar Pipeline Project). The project involves upgrading existing water infrastructure between Nyngan and Cobar to provide long-term water supply reliability and involves technical, environmental, and cultural heritage studies.	Economic, Environmental	Final business case developed, with stakeholder and community engagement.	Economic - Provides for the continued operation of agriculture and businesses that rely on the supply of water, within the community, to sustain their economic activity. Social - Provides a level of confidence to the local community, that there are options for the supply of water to support their business operations. Environmental - Supports decision making in managing the impact of water usage on the natural environment.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Transform aspects of the Region to improve resilience to drought)	\$45.5M secured for Stage 1 Australian Government national Water Grid NSW Regional Growth Fund	Stage 1 urgent pump station replacement, Stage 2 pipeline replacement, with final business case due second half of 2023.	NSW DPE - Water Council(s) Industry & Mining Sectors First Nations Local Communities	To be determined	Actions required: 1. Conduct Drought Resilience technical studies. 2. Detailed design. 3. Detailed cost estimate. 4. Complete full business case. 5. Funding applications and approvals. 6. Tender for construction. Supporting Drought Resilience Technical Studies: 1. Community consultation.	NA

No.	Initiative / Project Name	Description (Short)	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit (Economic, Social, Environmental)	Drought Resilience Pillar (1, 2, 3)	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Recommended for Shortlist (Yes / No)	Drought Technical Study(s) Required / Priority Actions	Cross Reference to Community Consultation Projects' (016)
ALL												
1	Additional Consultation & Community Connection	Regular consultation focused on the impacts of drought on key demographic groups, including First Nations people, young families, and the youth, to integrate their perspectives and solutions into community development.	Social		Social - Increased community cohesion	Planning and Monitoring (Pillar 1) (Maintain aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	2 - 3 Months	Council(s) First Nations Youth Young Families	To be determined	Actions required: 1. In conjunction with Community develop a consultation schedule. 2. Develop a plan for the conduct of each consultation. 3. Deliver the engagement log of the consultation. Supporting Drought Resilience Technical Studies: Nil.	NA
2	Economic Development, Visitation and Tourism Strategy - Cross Region Implementation	Implementation of a tourism strategy similar to the Darling River Run in the Three Rivers and Macquarie Marshes regions to boost local tourism and economic development through workshops on setting up tourism- related businesses like Airbnbs and Farm Stays.	Economic	NSW Future Ready Regions Strategy - Stronger communities and diverse regional economies	Economic - Initiatives would contribute to an off-farm income stream.	Planning and Monitoring (Pillar 1) Respond to Drought events (Pillar 2) Build future resilience (Pillar 3) (Modify aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	2 - 3 Months	Council (s) Tourism industry stakeholders	To be determined	Actions required: 1. In conjunction with Community develop a workshop/training material. 2. Develop a plan to conduct workshop/training. 3. Deliver the workshop/training. 4. Provide follow-up after the workshop/training. Supporting Drought Resilience Technical Studies: Nil.	NA
2	Mental Health Awareness in Young Men	Increase community sporting activities and events, like community BBQs, to enhance social connections, thereby addressing isolation among farmers and improving mental health among young men.	Social		Social - Increased community cohesion	Build future resilience (Pillar 3) (Maintain aspects of the Region to improve resilience to drought)	NSW Regional Growth Fund	2 Months	Community members Local sports clubs Mental health organisations	To be determined	Actions required: 1. In conjunction with Mental Health Organisations develop program content. 2. Develop a plan to conduct program. 3. Deliver the program. 4. Provide follow-up after the program. Supporting Drought Resilience Technical Studies: Nil.	

Appendix 5: Stakeholder Engagement Plan & Community Consultation Report

The Stable.

Regional Drought Resilience Program (RDRP016) Community and Council Consultation Feedback:

Coonamble Shire Council, Warren Shire Council, Bogan Shire Council

23rd of April 2024

STABLE

~adjective

not likely to give way or overturn; firmly fixed

~noun

a group of people who perform a similar activity or are employed by the same organization.



1. Document Control

Document Summary Information				
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Version Release Date	23/04/2024			
Document Security	Confidential and copyright to The Three Stables Pty Ltd			

Document History				
Version	Document Type	Issued by	Issued to	Date
1	Draft	Donald Murray	Ross Earl	23/04/2024
2				

Document Information				
This document provides a detailed summary of the feedback obtained across consultation periods with community groups and the Councils, within the Coonamble, Bogan and Warren Shires.				

2. Summary

The Regional Drought Resilience Plan is designed to enable local governments and their communities to better prepare for, respond to and recover from drought. Community level drought resilience depends upon strong primary industries and agricultural supply chain sectors, as well as other businesses, community organisations and local government.

The consultation process with the Coonamble, Bogan, and Warren Shires as part of the Regional Drought Resilience Plan (RDRP) was comprehensive, engaging a broad spectrum of the community including local government councils (Coonamble Shire Council, Warren Shire Council, and Bogan Shire Council), community members, and various stakeholders such as local organisations and businesses. The engagement was structured around initial assessments, community and council sessions focused on drought resilience, and follow-up meetings to refine strategies and gather additional feedback.

Key themes identified during these consultations included water security, with proposals for upgrading the Burrendong Dam and improving water transport channels; regional connectivity, emphasising the need to enhance digital connectivity to support local businesses and agriculture; economic development, with initiatives aimed at boosting tourism and local spending along with suggestions for tax incentives to stimulate local economies; and social cohesion, where community sporting events and activities were highlighted to

address social isolation and mental health issues, particularly among adult males.

Community and council feedback highlighted the perennially dry and arid conditions of the area, with drought only exacerbating the scarcity of water. Water security is a major concern, with supplies often only assured for six to twelve months following the onset of drought. Another significant issue raised was the criteria for drought declaration, which typically comes when businesses and industries are already suffering, delaying the availability of funding and support programs.

Feedback from the councils underscored varying priorities: Warren Council was sceptical of past consultation efficacy and stressed the need for tangible, beneficial projects. Coonamble Council noted the strategic importance of diversifying focus from water security due to their geographical advantage, and Bogan Council marked water security as a critical priority and showed interest in collaborative water management projects with neighbouring regions.

Overall, the consultation process was pivotal in shaping the strategic direction of the RDRP, aligning it with community needs and leveraging local insights to forge effective drought resilience strategies. This approach highlighted a community preference for practical and impactful projects that promise sustainable and resilient community development.



3. Introduction

This report provides the results from an interpretation of the consultations conducted to understand the communities experiences of drought and their insights for enhancing drought resilience.

The aim of the consultations and the subsequent co-design process with community stakeholders is to:

1. Inform the community and stakeholders about the RDRP project;
2. Generate great ideas, solutions, options, opinions and stories;
3. Form relationships with community members who have capacity to champion and lead projects;
4. Understand gaps in prior responses to drought resilience; and
5. Finalise a long list of potential drought resilience projects.

The aim of the consultation and review process with Council stakeholders, including Mayors and General Managers, is to:

1. Understand the services previously delivered by Council during drought to improve drought resilience, and the limitations to their success or reasoning for success;
2. Understand projects currently in development that aim to deliver improvements to drought resilience;
3. Gather feedback on the long list of projects developed through consultation with community members, in relation to projects that have been previously actioned or projects that are missing;
4. Co-prioritise the projects to develop the short list of priority projects for further detail and analysis; and
5. Gather feedback on the overall drought resilience report to ensure that it aligns with Council expectations and visions.

Drought operates cyclically, which means that at any given moment, the community is engaged in preparation, recovery, and adaptation. These phases can be segmented into four main stages: the good period, the uncertain period, the drought period, and the recovery period. While the specific impacts of these stages may differ from one drought to another, the goal is to implement measures, training, and strategies during the good periods. These proactive efforts are designed to lessen the severity and

destruction experienced during the uncertain and drought periods, thereby supporting a more rapid and efficient recovery.

Good Period

During periods of average or above average rainfall, the communities in the Northwest Region experience a relative sense of stability. These are the times when agricultural production stabilises, and there is less strain on water resources, allowing the community and businesses to operate under 'normal' conditions. However, as emphasised in the consultation, harsh arid conditions are a perennial state and therefore even during 'normal' conditions, water efficiency and water saving is still a paramount concern.

Uncertain Period

During uncertain periods, where growing conditions are below average, there is a heightened sense of anxiety and cautiousness among farmers and businesses. These periods challenge the community to adapt to less predictable conditions, potentially leading to a reduced agricultural output and increased monitoring of resource allocations, especially water and feed for livestock.

Drought Period

During official drought periods, where rainfall is consistently below average, feedback highlighted substantial challenges. The region, being inherently arid, faces acute water shortages that severely impact agricultural productivity and local industries. Consultation responses emphasised the critical nature of water security, with a focus on long-term solutions like dam enhancements and improved water management systems. There was a notable concern regarding the late declaration of drought periods, which often come after businesses and the agricultural sector have already encountered significant hardships.

Recovery Period

In the recovery phase, while rainfall might increase, the community and businesses still face the lingering effects of the drought. Feedback suggested that this period is crucial for rebuilding and planning for future resilience. Initiatives such as the implementation of more sustainable agricultural practices, investments in infrastructure to better manage future droughts, and continued support for affected businesses and communities are vital. The emphasis is on not just returning to pre-drought conditions but improving the overall resilience and sustainability of the region to better withstand future droughts.

4. Initial Consultation - Community Groups

Consultation Workshops

Town	Male	Female	Under 40	TOTAL
Coonamble	3	7	2	10
Marra	6	4	1	10
Warren	14	13	3	27
Nyngan	8	3	1	11
	31	27		58

Across region RDRP016, business diversity and community group representations was present at the 4 community consultation and included; Local Shire Councillors, NSW Framers Local Councillors, town and village Progress Associations and Chamber of Commerce, cereal and cotton growers, wool producers, goat producers, cattle producers, retail businesses, trades people, health workers and nurses, cotton ginner, Tourism operators, Educators, Environmental Groups (Macquarie Wetlands), Local Lands Services, MDBA, NSW Crown Reserve Trustees, Sustainable Agriculture and Water Management groups, past Drought Resilience and Rural Financial Councillors, NSW Office of Regional Youth, junior and

senior sporting clubs, Mining Industry workers and suppliers, carbon farmers.

Additional Consultation Activities and Access

Throughout the consultation period print, radio and social media invited community to reach out to the Drought Plan Officer co-ordinating the consultation to ensure open and transparent consultation access. Post consultation, 2 written submissions and 2 telephone calls were received from attendees, and as a result they provided additional thoughts and evidence to further provide a comprehensive understanding of issues raised.

4.1. Coonamble Shire Council

Consultation with the Coonamble Shire Council took place from the 10th – 14th of February across various towns. Some of the key discussion topics included:

Discussion Topic	Information and Details
Financial, Health and Relationship Stress	Financial stress, coupled with ongoing financial obligations and family expectations, creates significant social and economic pressure, making it challenging for individuals and families to maintain stability. The strain is particularly pronounced during drought periods, intensifying the struggle to manage everyday life and relationships effectively.
Community Impact and Population Decline	Drought has a profound impact on the community, notably visible in Coonamble where the cycle of poverty becomes more pronounced. The town appears uninviting with empty shop fronts, reflecting the decline in business and population. This leads to unemployment and limited job opportunities, acting as a catalyst for further population decline. Vacant houses deteriorate or become vandalised, exacerbating the town's decline.
Challenges in Population Recovery Post- Drought	Post-drought recovery is hindered by barriers that prevent attracting and retaining new families, such as the lack of childcare and suitable housing. The absence of lifestyle blocks for new housing developments further complicates this issue, making it difficult for potential residents from the city to find appealing living conditions that meet their expectations.

Discussion Topic	Information and Details
Water Security	While water security in some areas of the shire is satisfactory, it could be improved. Not all areas benefited from the bore and capping scheme, which was crucial for water access. The perception of unfair water competition and the need for additional drought storage in Burrendong Dam are significant concerns, emphasising the necessity for equitable water access and enhanced storage solutions.
Social Connectivity	The importance of maintaining social connectivity is recognised, especially during droughts. Community events like 'Rain Dance' and random cricket games play a vital role in keeping the community united. It's essential to foster this connectivity continuously, to build resilience that can withstand the challenges of dry years.
Business Mentoring and Decision Making	There is a significant need for increased access to business mentoring to assist in proactive decision-making concerning livestock nutrition, trading, and relying on accurate data before situations worsen. This approach is crucial for sustaining operations through challenging times.
Media Awareness and Perception of Farmers	Changing the negative media perception of farmers is crucial. There is a need to promote a more accurate image of proactive, resource-managing farmers rather than the often portrayed bleak scenarios. Highlighting the essential role of farmers in food production and encouraging the purchase of Australian products are key strategies to improve public perception and support for the agricultural sector.
Labour Challenges Post- Drought	Finding qualified, skilled labour becomes increasingly difficult after a drought. This affects both on-farm and off-farm businesses as local economies revive. Initiatives like scholarships or incentives for youth upskilling are essential to cultivate local talent and ensure continuity of services.
Isolation and Connectivity Issues	Poor mobile and data connectivity exacerbate the feelings of isolation, particularly during droughts. Improving telecommunications services, such as expanding mobile coverage and introducing new providers like Starlink, could significantly reduce this isolation.
Volunteer Fatigue	Small communities heavily rely on volunteers for organising functions and services. However, volunteer fatigue is a significant issue, especially during and after droughts, when the community's capacity to volunteer diminishes due to increased personal and economic pressures.
Succession and Transition Planning	Drought complicates succession planning within farming families, often delaying or disrupting it due to the financial and emotional stresses involved. Transition planning for older farmers and integrating younger generations into the farming business are critical for continuity but are often overlooked during challenging times.
Educational Access and Costs	Access to quality education is a barrier for many families, with distance and associated costs discouraging higher education pursuits. Families sometimes relocate to provide better educational opportunities for their children, impacting the demographic composition of rural communities.

Discussion Topic	Information and Details
Importance of Local Support During Drought	Local support initiatives, such as 'Buy Local' campaigns, are vital during droughts. They help sustain the local economy and are preferable to external aid like hampers, which might not always meet the community's needs as effectively as local purchasing power would.
Comprehensive Business Planning	There is a pressing need for thorough business planning and mentorships to foster preparedness and resilience in the face of recurring droughts. Businesses that plan and prepare tend to fare better during and after droughts, highlighting the importance of proactive management and strategic decision-making.
Government Service Continuity	The lack of continuity in government positions, particularly in health and local land services, impedes effective community support and development. Longer contract terms and integrated local services could provide more stability and effectiveness, benefiting the entire community.

4.2. Warren Shire Council

Consultation was undertaken across the Warren Shire in two locations on the 14th of February.

Discussion Topic	Information and Details
Financial, Health and Relationship Stress	Warren Shire experiences significant social and economic challenges during drought periods, notably financial, health, and relationship stress. Reduced income combined with continuous financial commitments and family expectations creates substantial hardship, making it difficult for residents to maintain stability. The economic effects are profound, with businesses closing and financial institutions shutting down, forcing residents to travel further to access banking services. The resultant job losses lead to a decline in the local population, which reduces the number of volunteers and affects community services like education and retail, further exacerbating the economic downturn.
Business Mentoring and Water Security	Business mentoring is seen as crucial in Warren for helping residents make proactive decisions, especially concerning livestock nutrition and trading. Water security is a significant concern; limited access during drought undermines confidence in investing in the community, correlating directly with declines in population and business activity. Proposals such as more bore and capping programs and increasing Burrendong Dam's capacity by 20% are suggested to improve the situation and support economic stability.
Isolation and Connectivity Issues	Isolation is particularly severe in Warren during droughts due to inadequate mobile and data access, which hinders not only personal communication but also the viability of online or home-based businesses. This lack of connectivity affects the social fabric of the community, making it difficult to maintain relationships with family and friends, and restricts residents from accessing essential services and information.
Volunteer Fatigue and Red Tape	Volunteer fatigue is a notable issue, with the same individuals repeatedly bearing the brunt of community support efforts. The financial and time costs associated with volunteering, alongside

Discussion Topic	Information and Details
	excessive bureaucratic requirements, discourage community participation and contribute to a decline in volunteer numbers. Reducing red tape, particularly around environmental planning, is suggested to make life easier in the bush and encourage community retention during droughts.
Infrastructure and Skilled Labour Challenges	Limited access to reliable electricity infrastructure restricts the development of alternative industries that do not rely on water, such as wind and solar energy, which could provide alternate income streams during droughts. Additionally, accessing skilled labour is a persistent challenge, exacerbated by the lack of local educational opportunities in agriculture and trades, leading to business under- resourcing and staff burnout.
Health Services Continuity	The lack of continuity in health services becomes a critical issue during drought, as frequent changes in medical staff hinder the development of stable patient-provider relationships. This inconsistency discourages residents from seeking medical help, particularly for mental health issues, further straining the community's wellbeing during already challenging times.

4.3. Bogan Shire Council

Consultation was undertaken across the Bogan Shire on the 15th of February.

Discussion Topic	Information and Details
Population Loss and Community Cohesion	Drought has profoundly impacted population dynamics and community cohesion. There is a noticeable decline in the younger population returning to regional communities, as other opportunities appear more exciting, and a generation has not returned to the land. Additionally, mid-aged skilled individuals have left during the drought and not returned, exacerbated by an increase in properties owned by corporate agriculture and overseas investments, which typically lack a strong sense of local community responsibility. This shift contributes significantly to the local social and economic fabric's erosion, as these entities often do not support local businesses as traditional community members would.
Volunteer Fatigue and Social Isolation	Post-drought, volunteer fatigue is substantial, with many feeling too exhausted to organize or participate in community functions, such as those at the recently repaired Marra Hall. Drought also imposes significant social isolation; financial constraints limit social activities, poor communication infrastructure impedes connectivity, and family interactions can sometimes intensify existing stresses.
Infrastructure Deterioration and Economic Challenges	Drought leads to the deterioration of transport infrastructure, like unsealed roads, making them hazardous and inaccessible for essential services like ambulances during adverse conditions. Economically, drought creates a cyclical downturn, with each period of drought forcing the local economy to almost restart from ground zero. The challenge of resourcing, including re-establishing a workforce and securing housing in post-drought periods, becomes a daunting and expensive task.

Discussion Topic	Information and Details
Water Security and Government Resource Allocation	Water security remains a crucial concern, with significant environmental and economic implications. The health of water systems like the Macquarie Marshes is vital for maintaining livestock and agriculture. However, limited access to essential water infrastructure like piping and capping exacerbates the challenges during drought. Moreover, community frustration often increases due to perceived misallocation of government resources, such as investing in inappropriate equipment during drought or providing short-term employment contracts that do not support sustainable community development.
Decision Making and Anxiety Post-Drought	The anxiety associated with making future decisions post-drought is palpable, with many in the community needing more education and resources to make informed decisions confidently. This uncertainty affects the community's ability to recover and rebuild economically and socially, highlighting the need for targeted support and education to reinforce local confidence and resilience.

5. Secondary Community Consultation

A second round of community consultation was undertaken to gain feedback surrounding the long list of projects developed and understand the community priorities. This was to ensure that the long list of projects, presented to Council for prioritisation, accurately reflected the needs, perspectives, and insights of the respective communities.

This consultation was undertaken via Microsoft Teams with representatives across all three communities present at the one meeting, facilitating region-based discussion.

Based on the long list of projects the following priorities were raised by the community:

Priority Project	Commentary
Water Security 1. Upgrade Burrendong Dam Capacity to 120%. 2. Upgrade Gin Gin Weir	Expansion of Burrendong Dam capacity to 120% will enable an extra 200 GL of water storage. This is enough to provide an extra year of water for both residential purposes and agriculture. In the last flood, the capacity of the Burrendong Dam reached 140% without structural implications, suggesting that there is the capability of increasing capacity to 120% within minimal costs. Suggestion: Business Case/ Feasibility study for the Burrendong Dam Capacity Upgrade of raising of Gin Gin Weir wall. Could also include employment of project officer to gather and synthesise information across the three LGAs to support the application.
Regional Connectivity	Remote sensing of farm dams and major irrigation projects depend on connectivity between regions whether that be 4G or 5G. The connectivity limits agriculture and makes things difficult in good times and impossible in harder times.
Economic Development, Visitation and Tourism Strategy – Cross Region Implementation: Three Rivers and Macquarie Marshes	Emphasis was placed on not just buying from the bush but buying in the bush – getting tourists to come to the region and spend in the region. One example was the Darling River Run (https://www.thedarlingriverrun.com.au/) which has been very beneficial in its application – could a similar tourism strategy be rolled out within these three LGAs. Workshops to teach people how to set up their own tourism businesses e.g. Air BnBs, Farm Stays, etc.

Priority Project	Commentary
	The intention is to be able to use the income generated from these programs to fund bores and road upgrades. Warren Council were willing to hold responsibility across all three councils.
Economic Zones and Tax Incentives	While interest in such projects was expressed, scepticism was also raised and emphasis was placed on the careful wording of such projects to ensure it didn't become a media target or regional subsidy program. Suggestion 1: Tax incentives for local industries and businesses (for all business not just agriculture). Suggestion 2: Implementation of local spend target for state or federal infrastructure projects within regions to ensure that money is spent in the local economies.
Social Cohesion	Population decline and increase in rates of mental health (particularly amongst adult males) is a significant concern. In past generations / decades, 3 or 4 people would assist as farmhands, creating a stronger community, but now due to economic conditions, farmers often now work in isolation for several hours or days. They are also more fearful of leaving the farm due to fears of theft and the lack of support. As a result, rates of mental health has increased. A result of the financial uncertainty, and the increased cost of pub food and meals, has meant that the number of pubs in the region has declined. This is reducing opportunities further for social cohesion and connection. It was suggested that the big winners in the community are sporting activities for adults and/or kids, as even youth sports bring the families out to mingle. Suggestion: Implementation of community sporting activities and programs and community bbqs / events, to increase the number of opportunities for social connection within community.

Feedback:

Representatives from the Warren Shire expressed a desire for actions that delivered tangible outcomes with observable progress, particularly in areas such as water security and the ability to adapt to changing drought and water conditions. The council expressed a strong preference to implement and manage projects internally, leveraging their own capacities rather than relying on external consultants. They aim to lead economic and tourism development strategies across all three councils. Additionally, they highlighted the need for better engagement with the 30-50 age group, who have been minimally involved due to a distrust of political bureaucracy.

Representatives of the Coonamble Shire mentioned that water security isn't a top priority for them, given their advantageous location above the Great Artesian Basin. They are interested in prioritising projects that aren't

already covered by existing implementation programs. Furthermore, there was a significant emphasis on the importance of implementing tax incentives within the region. Coonamble seek to focus on strategic projects and policy implementations that promise long-term benefits, rather than compiling a mere list of potential initiatives.

Bogan Shire Representatives identified water security as a critical priority for their area. They proposed the idea of collaborating with Warren and potentially Cobar on a joint water security project within the Macquarie River region, indicating a regional approach to the issue. This cooperation could potentially enhance the impact and feasibility of the water security measures they undertake.

6. Survey Feedback

While the secondary community consultation raised crucial information relating to the prioritisation of the long list of projects, due to the breadth of the region and pre-existing commitments, in comparison to the initial consultation, the attendance was significantly reduced. In order to ensure that all initial members of the community had the opportunity to comment on project prioritisation, a survey was developed which contained the long list of projects presented within the table in Section 6 of this report. 18 responses were recorded.

Commentary	Average Score (1-10)
Water Security: Expansion of Burrendong Dam capacity to 120% will enable an extra 200 GL of water storage. This is enough to provide an extra year of water for both residential purposes and agriculture. In the last flood, the capacity of the Burrendong Dam reached 140% without structural implications, suggesting that there is the capability of increasing capacity to 120% within minimal costs. <i>Project Suggestion:</i> Business Case/ Feasibility study for the Burrendong Dam Capacity Upgrade of raising of Gin Gin Weir wall. Could also include employment of project officer to gather and synthesise information across the three LGAs to support the application.	5.9
Ongoing Consultation and Community Connection: Ongoing consultation around the impacts of drought on population and community development needs to be a regular activity, especially in key demographic groups such as First Nations people, young families and the youth. Their view on drought, the connection to it and the solutions around it, should not be underestimated. <i>Project Suggestion:</i> Throughout the life of the Regional Drought Resilience Plan, energy is invested in ensuring that underrepresented groups have the opportunity to contribute to the future of the region.	5.1
Regional Connectivity: Remote sensing of farm dams and major irrigation projects depend on connectivity between regions (either 4G or 5G). The connectivity limits agriculture and makes things difficult in good times and impossible in harder times. <i>Project Suggestion:</i> Continue to look for ways to improve connectivity and increase infrastructure.	7.2
Economic Development, Visitation and Tourism Strategy - Cross Region Implementation: Three Rivers and Macquarie Marshes: Let's get tourists to come to the region and spend in the region. One example was the Darling River Run (https://www.thedarlingriverrun.com.au/) which has been very beneficial in its application. <i>Project Suggestion:</i> A similar tourism strategy be rolled out within these three LGAs with workshops to teach people how to set up their own tourism businesses e.g. Air BnBs, Farm Stays, etc.	6.2
Economic Zones and Tax Incentives: Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern. <i>Project Suggestion:</i> Tax incentives for local industries and businesses (all businesses, not just agriculture).	6.9

Commentary	Average Score (1-10)
Economic Zones and Tax Incentives: Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern. <u>Project Suggestion:</u> Implementation of local spend target for state or federal infrastructure projects within regions to ensure that money is spent in the local economies.	6.9
Social Cohesion: Population decline and increase in rates of mental health (particularly amongst adult males) is a significant concern. In past generations/ decades, 3 or 4 people would assist as farmhands, creating a stronger community, now farmers often work in isolation. This is reducing opportunities further for social cohesion and connection. It was suggested that the big winners in the community are sporting activities for adults and/or kids, as even youth sports bring the families out to mingle. <u>Project Suggestion:</u> Implementation of community sporting activities and programs and community bbqs / events, to increase the number of opportunities for social connection within community.	7.2

7. Council Review

The RDRP Program requires Councils to:

- Consider both water security and environmental and social resilience needs.
- Collaborate across Local Government boundaries.
- Encourage active community participation to capture ideas and thoughts related to drought preparation, management and recovery.

The aim of the hybrid (in-person and online) Council review meeting was to:

- Collect Council feedback, and reach an agreeable position across the region, on previously completed sections of the RDRP.
- Gain Council input and perspectives on observations and lessons from prior droughts, current or planned economic initiatives and responses to drought, and key organisations and community groups to be engaged during the project.
- Review the current compiled list of potential projects and initiatives, and received feedback on whether they align with any Council project plans and/or whether any projects/initiatives are absent from the list.
- Provide Councils with the planned next steps for the completion of the RDRPs.

Based on the discussions completed during this meeting the following feedback was received, which guided the prioritisation of projects and feedback.

Bogan Shire Council

Bogan Shire Council sees significant merit in strengthening community programs, viewing these as crucial for enhancing social cohesion. However, they believe tax incentives, though beneficial, are not feasible in the short to medium term and thus not recommended currently. The council emphasises the importance of regional water security but indicates specific local projects like the Nyngan bore and the repair of leaks in the Albert Priest Channel are more immediately relevant than broader studies or the Nyngan to Cobar pipeline, which they deem irrelevant to their direct interests.

Coonamble Shire Council

Coonamble Council, expresses that water security is not their highest priority due to their advantageous geographical location above the Great Artesian Basin. Their focus is on initiating and prioritising projects that aren't already covered by existing programs, aiming for strategic implementations that bring long-term benefits and avoid merely extending current efforts. They emphasize the need for actionable tax incentives and strategic projects that yield tangible progress.

Warren Shire Council

Warren Shire Council has outlined a strong preference for substantial projects that deliver ongoing benefits, particularly in water security enhancements at Burrendong Dam and Gin Gin Weir, and the development of sustainable recreation and tourism strategies. They express a need for internal execution of projects rather than reliance on external consultants, and stress the importance of involving middle-aged demographics in the planning processes to ensure the initiatives meet the actual needs and avoid bureaucratic disconnects.

Discussion Insights

The roundtable discussions highlighted a broader context in which these councils operate, emphasising the need for a shift from overemphasising agriculture to a more diversified approach to drought resilience. This includes recognising the arid environmental conditions that dictate regional capabilities and framing drought not just as a cyclical challenge but as a constant condition requiring

ongoing management strategies. There is a noted need for more inclusive community engagement strategies, particularly with hard-to-reach groups like Aboriginal communities and the critical 30-40 year age group, who are pivotal for future community stability.

8. Consultation Overview

Combining all insights, it is evident that all three shires seek more than just short-term fixes; they demand robust, integrated strategies that address both immediate and long-term needs. Water security emerges as a common thread of concern, albeit with different priorities and proposed solutions reflecting each council's specific circumstances. The feedback also underscores a universal desire for improved economic, social, and environmental resilience that can sustain these communities through the unpredictable challenges posed by drought and other climatic variabilities.

Appendix 6: Projects Economic Feasibility Assessment and Benefit Cost Ratios

Economic Assessment

for Regional Drought Resilience Plan

016 - Northwest NSW - Coonamble Shire Council, Warren Shire Council and Bogan Shire Council

Far North West Joint Organisation

1. Introduction

This report contains an assessment using rapid economic appraisal of the options shortlisted for the Regional Drought Resilience Plan for the Far North West Joint Organisation.

2. Background

The Regional Drought Resilience Planning Program (RDR Plan) ('The Program') is designed to enable local governments and their communities to better prepare for, respond to, endure and thrive during, and recover from drought.

3. Project Reports

There are two completed reports for the project under the Program:

- Regional Drought Resilience Plan (RDR Plan-016) covering Coonamble Shire Council, Warren Shire Council, Bogan Shire Council which together make up the Northwest NSW Region; and
- Regional Drought Resilience Plan (RDR Plan-004) covering Bourke Shire, Brewarrina Shire, Cobar Shire and Walgett Shire, which together make up the Far Northwest Region¹⁸.

One of the outcomes of each report is the development of initiatives and projects to improve the drought resilience of the region across four outcome areas:

- People, Culture, and Community
- Economy
- Landscape and Natural Environment
- Infrastructure and Built Environment

Each report contains a long list of considered projects, and each project proposal is marked according to whether it was recommended for shortlisting.

This economic assessment addresses the first Plan (RDR Plan-016) covering Coonamble Shire, Warren Shire, Bogan Shire, which together make up the Northwest Region.

4. Economic Assessment

The assessment phase of the project is for The Stable economics team to do a rapid assessment of the shortlisted projects.

It is proposed that this assessment comprise:

- A logic structure that expands at the project level, that structure developed for the plan¹⁹;
- A rapid cost-benefit analysis²⁰, inputting cost and benefit data to the NSW Treasury proforma, estimated utilising the data calculated in previous two tasks.

The "rapid" nature of the technique is to assess benefits and costs only at a high level, using readily available secondary data, but not undertaking primary research. This methodology follows broadly the real options methodology in the NSW Treasury Guidelines, while remaining within the cash flow framework of Treasury's recommended rapid cost-benefit analysis.

5. Data needs

To deliver on the above methodology there are simple economic data needs:

- Available secondary data sources, including past assessments of proposals, or of related projects;
- Rapid assessment, using these sources, of the project logic as integrating with the plan logic.

5.1. Projects for Analysis

The study used detailed consultation techniques to shortlist projects for potential investment. The following project types were shortlisted across both reports:

- Water security - Groundwater
- Telecommunications Security
- Water Security Plans

These three project types can be described generically as:

¹⁸ This region is not to be confused with the Far North West Joint Organisation (FNWJO), which is a representative body for Bourke, Cobar and Walgett Shire Councils as proclaimed. The FNWJO lodged successful applications to develop these two Regional Drought Resilience Plans on behalf of the seven Councils of Bogan, Bourke, Brewarrina, Cobar, Coonamble, Walgett, and Warren Shire. All seven councils are part of the Western Plains Functional Economic Region.

¹⁹ Pg. 20-21, TPG23-08 NSW Government Guide to Cost-Benefit Analysis

²⁰ See A8.1 Preliminary Cost-Benefit Analysis, Pg. 100, TPG23-08 NSW Government Guide to Cost-Benefit Analysis

- **Water security:** Including Groundwater assessments and water reliability studies for the two regions or their member councils. This may include aquifer assessments, bore monitoring programs or water supply assessments incorporating groundwater. Key data sources were the Councils themselves and state planning bodies (regional water plans).
- **Telecommunications planning,** including mobile service areas, programs to identify communications gaps and post proposals to address telecommunications issues in these regions. Key sources were past telecommunications projects and their project managers.
- **Water Security Planning:** Existing water planning for the wider region, including Western Regional Water Strategy, and identifying complementary plans from within Councils. The key sources were existing water plans.

In addition, some of the “To be considered” projects (not shortlisted in the first round, but ranking highly) were selected for further analysis. These are projects that did not make the cut, but were thought worthy of further consideration. A panel reviewed these projects and chose a selection. In some cases these aligned with existing projects, providing expansion or more details scope – eg. Improving bore water quality, rather than quantity.

5.1.1. Projects for RDRP 016

The final shortlisted projects for Regional Drought Resilience Plan 016 for Northwest NSW – Coonamble Shire Council, Warren Shire Council, Bogan are listed below.

The following specific projects in Area 016:

Water Security

Water Security Groundwater in Warren Shire Council - Proving of groundwater resources (quality and flow) and installation of standpipes

- Increase the number of water bores for stock and domestic use and dust suppression for road maintenance/construction activities. The proving of groundwater resources (quality and flow) and installation of standpipes (connected to a supervisory control system to provide a capability for

standpipes to be switched on/off, to cross level usage between locations to adjust for changes in quality and flow rates) in up to five locations, to provide greater resilience for the agriculture and town water supplies of local towns. Three bore locations have been considered in this particular case.

Telecommunications Security

- Improve telecommunications connectivity (4G and 5G) in the region to support business and agricultural productivity.

Water Security Off River in Warren Shire Council

- Establish an off river storage at or before the Nyngan off-take to secure the water supply to Warren Shire (industry, environment, irrigators, domestic supply). Analysis indicates an additional off-river storage with 3,000 ML capacity could reduce water security risks for Nyngan and increase resilience of Nyngan, Cobar and nearby mines during drought.²¹

Water Planning

The following project was shortlisted in the 016 Region with water planning objectives:

- Develop a regional water security infrastructure plan for the Macquarie River

In conceptualising this project, the plan includes a scope of feasibility studies, community engagement and development of funding proposals. It is difficult in an economic analysis to measure the benefits of regional or basin plans per se, so we have taken the approach of assuming that the proposed plan would occur as part of the base case, but the development of the plan into particular options has been measured by representative case studies of groundwater security and off river storage.

From these shortlisted options, we deduce three options for analysis:

- **Base Case:** Planning without projects: it is assumed for the sake of clarity, that considering a program with up to three projects will incorporate a base level of expenditure on water security planning, and we’ve focused the water planning net benefit estimates on projects that might develop from that planning.

²¹ https://bogan.nsw.gov.au/images/Business_Case_Nyngan_Cobar_Water_Security_DRAFT_V2.0.pdf

- **Option 1: Water security: Groundwater** – investigation and development of bore fields in the region
- **Option 2: Telecommunications Upgrade** – Improve telecommunications connectivity (4G and 5G) in the region to support business and agricultural productivity
- **Option 3: Water security: Off river storage** at or near Nyngan

5.2. Projects Logic

This task consists of adapting the program logic diagrams down to the project level by identifying key benefits and costs and the logic of how they will be delivered.

For Project 016, the following Logic Map was presented:

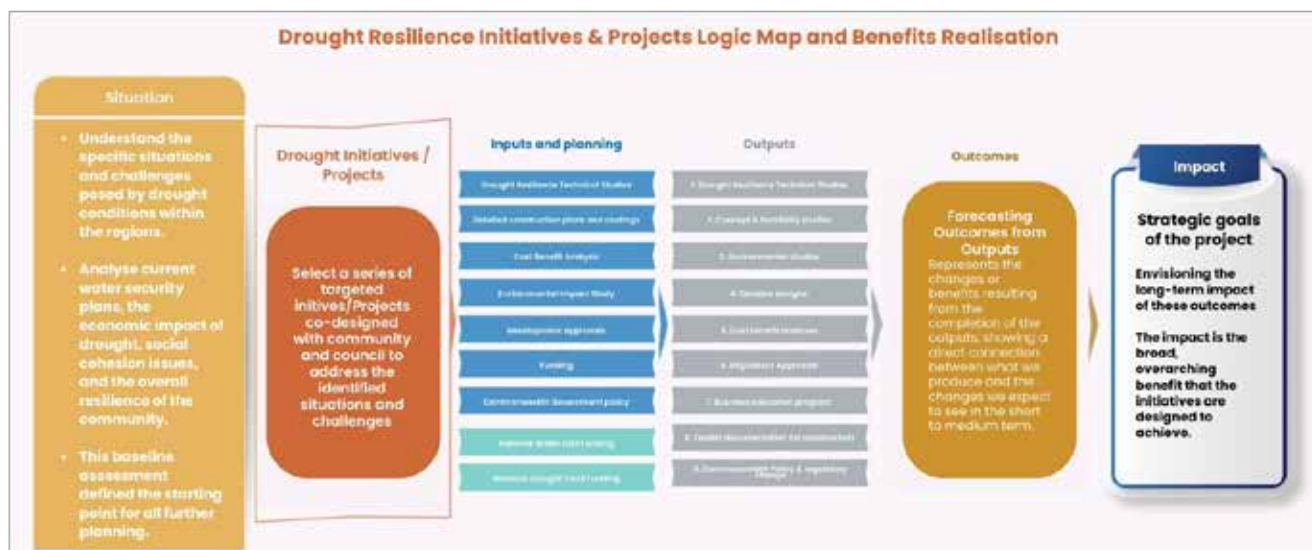


Figure 1: Initiatives and Projects Overview Logic Map

For the shortlisted individual projects, the draft project logic maps proposed are:

REGIONAL DROUGHT RESILIENCE PLAN 016 (BOGAN, COONAMBLE AND WARREN LOCAL GOVERNMENT AREAS)

Drought Resilience Initiatives & Projects Logic Map and Benefits Realisation

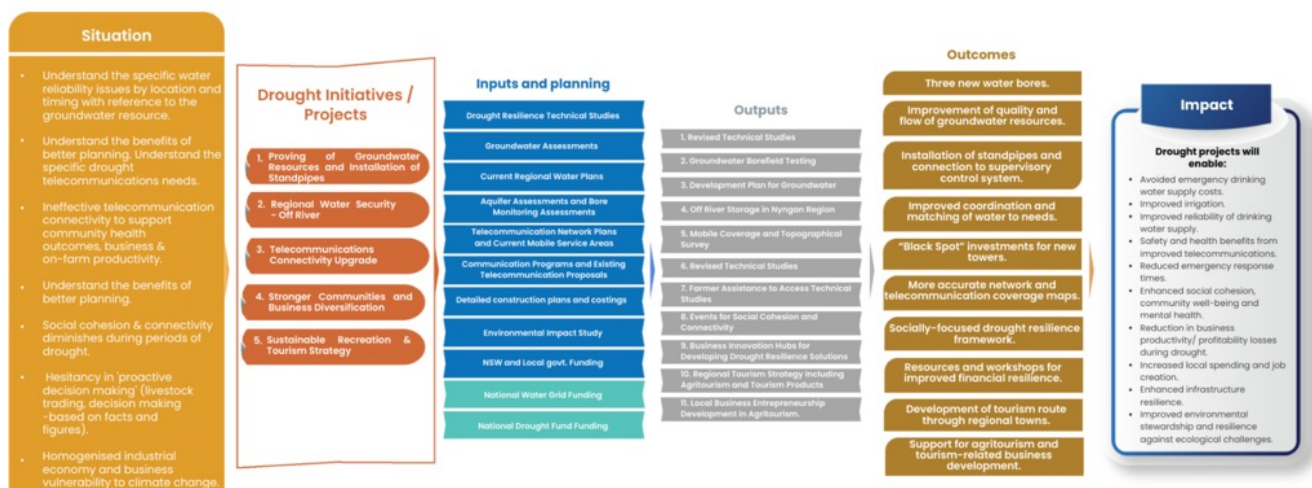


Figure 2: Projects Logic Map

6. Costs

The costs have been calculated on benchmark estimates by area and scope. This section breaks down the costs for each option to achieve the benefits listed in Section 6 Benefits.

6.1. Groundwater

The costing for the groundwater project has been developed with a view to conduct a ground water resource study, drill three new water bores, prove quality and flow of groundwater resources, install standpipes and connect to a supervisory control system (to provide a capability for standpipes to be

switched on/off, to cross level usage between locations to adjust for changes in quality and flow rates) across a three phase program at a total cost of \$0.81M.

6.2. Telecommunications

The principal tasks of the Telecommunications Security project was to investigate significant areas of non-connection to the mobile broadband network and to implement “black spot” investments to locate new towers so that there is continuity of coverage.

There have been a number of similar programs that can be used to benchmark costs.

Description of work	Total cost	Units	Total cost
Mobile Coverage and Topographical Survey	\$50,000	1	\$50,000
Towers	\$30,000	20	\$600,000
Fibre Connectivity	\$200,000	1	\$200,000
Solar Powered Battery Packs	\$50,000	1	\$50,000
Licensing & Subscription	\$50,000	1	\$50,000
Project Management	\$200,000	1	\$200,000
Escalation & Contingency	\$50,000	1	\$50,000
Total Cost			\$1,200,000

Table 2: Mobile phone coverage investment

6.3. Water Security

The costs for the Off river storage at or near Nyngan have been benchmarked from Queensland and NSW studies.

	Capital Cost per Unit Capacity \$/ML	Benchmark Location	Capacity ML	Cost \$	Notes
Offstream Storage	\$37,000	Walcha (Apsley)	300	\$11,000,000	
Offstream Storage	\$37,000	Tuross River Study	3,000	\$130,000,000	Cost revised as part of a variation

Table 3: Capital Cost Benchmarks

7. Benefits

The impact charts illustrate the likely benefits of the major options:

Groundwater

- Avoided emergency drinking water supply costs – typically valued in the literature at above \$7 per kL;
- Irrigation benefits – typically valued at crop gross margins of \$3 per ML.

Telecommunications

- Improved telecommunications offer safety and health benefits to the region. As permanent infrastructure, these benefits accrue both in and outside emergency situations like drought or flood.
- Safety: emergency response time savings valued using risk and value of life.

- Health: reduced transport cost to nearest health centre. Improved pre-care for emergency patients.

Water planning

- Improved reliability of drinking water supply from better matching of storage and transmission. Values in terms of emergency supply costs avoided at \$7/kL.

In this section, these benefits are broken down in more detail for input to the cash flow analysis.

It's important to first set down that many of the benefits are driven by the town, regional or state population. The following table, adapted from the main report, sets the key values for this region:

	Bourke	Brewarrina	Cobar	Walgett	Bogan	Coonamble	Warren
Population	2,340	1,356	4,059	5,253	1,467	3,732	2,550
Projected Population (2041)	1,556	931	2,555	3,732	1,581	2,965	1,755
Drought Water Consumption (kL pa 2023)	101,739	40,478	176,478	228,391	68,739	162,261	110,870
Drought Water Consumption (kL pa 2041)	67,652	58,957	111,087	162,261	107,261	128,913	76,304
Household Water Consumption (kLper household pa)	597	400	203	300	314	165	231
Potable Water Consumption (kLper household pa)*	100	100	100	100	100	100	100

Table 4: Population and Water Demand. Source: NSW Department of Planning Population Projections & NSW Department of Local Government Water Supply Statistics * Estimated using urban individual use metering studies

7.1. Groundwater

Groundwater is a significant variable in managing water security in the councils in this plan. Groundwater is used in town water supplies to ensure volume in droughts by providing supplementary water when for example, in drought, regulated releases cease from upstream storages, or in dry periods more generally, surface water quality declines with reduced flows.

In the main report, borefields are described as one of the key system assets in delivering Water Security:

- **Borefields.** Groundwater accessed through borefields supplements surface water sources, particularly during periods of drought. The use of borefields requires careful management to prevent over-extraction, which can lead to declining water levels and quality.

7.2. Telecommunications

In the main report, Telecommunications Security is proposed as a project because of the likely benefits that are described as:

- supporting the operational continuity of local businesses, community and agricultural activities and
- improving the community's confidence in their economic stability.

These benefits can be further broken down into:

- local business and community operational continuity benefits;
- benefits for non-local users, either as receivers of telecommunications in other

regions, or as visitors to the far west region;

- health related benefits for the local community.

To these can be added the technological benefits of the proposed device program being used by farmers to give a more efficient water use.

That is, by the types of users and their location.

Measuring these benefits includes calculating the time savings from better telecommunications and valuing them using average earnings.

The following Table shows the calculation of business and community continuity benefits:

General Telecommunications benefits		Notes
Black spots addressed	5	
Population Impacted	100%	
Time saving (hours per annum per person)	0.1	Estimate
Value	\$1,958	Average Weekly Earnings
Value per hour	\$58	35 hour week
Value of time saving per annum	\$5.59	
Total population impacted	2,550	Population of the Warren region

Table 5: General Telecommunications Benefits

The total value in the Rapid CBA Model is calculated as the value of local time saving (\$5.59 per person) times the local population, plus the value to the population as a whole per person, \$0.06 times the state population.

7.3. Water Planning

The benefits of water planning include improved reliability of the drinking water

supply through better matching of storage and transmission, with values in terms of emergency supply costs avoided estimated at \$7 per kilolitre.

8. Net Benefit

The following tables show the results after costs are netted off from benefits.

8.1. Results

Option	NPV	BCR	NPV Rank out of 3	BCR Rank out of 3
Base Case: Planning without projects	-\$170,915		-	-
Option 1: Water security: Groundwater	\$550,791	2.144	3	3
Option 2: Telecommunications Security	\$2,483,237	3.471	2	1
Option 3: Water security: Off river storage Nyngan	\$128,719,996	2.350	1	2

Table 6: Rapid Benefit Cost Analysis Results. Source: Analysis using NSW Treasury Rapid BCA Model

Options 1, 2 and 3 have benefit cost ratios greater than 1 at 5% discount rate.

8.2. Sensitivity and Distributional Analysis

All options have positive Net Present Values at all discount rates considered.

Sensitivity	3% Discount Rate		7% Discount Rate		10% Discount Rate	
Option	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-\$170,729		-\$170,912		-\$170,632	0.106
Option 1	\$571,433	2.083	\$530,831	2.203	\$502,352	2.285
Option 2	\$3,418,118	4.408	\$1,821,703	2.810	\$1,149,572	2.139
Option 3	\$210,584,491	2.959	\$75,745,210	1.891	\$28,613,666	1.397

Table 7: Sensitivity testing – Discount Rate

The results are insensitive to cost and benefits variance up to +/- 20%.

	Costs +20%		Costs -20%		Benefits +20%		Benefits -20%	
Option	NPV	BCR	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-\$209,962		-\$131,867		-\$166,050		-\$175,779	
Option 1	\$454,514	1.787	\$647,069	2.680	\$757,227	2.573	\$344,355	1.715
Option 2	\$2,282,284	2.893	\$2,684,189	4.339	\$3,180,837	4.166	\$1,785,637	2.777
Option 3	\$109,643,314	1.958	\$147,796,678	2.937	\$173,540,677	2.819	\$83,899,315	1.880

Table 8: Sensitivity to Cost and Benefit Variance

All options have positive Net Present Values for both Low case scenarios and High case scenarios.

Scenario	Low Case Scenario		High Case Scenario	
Option	NPV	BCR	NPV	BCR
Base Case	-\$214,827		-\$127,002	
Option 1	\$248,078	1.429	\$853,505	3.216
Option 2	1,584,685	2.314	\$3,381,789	5.207
Option 3	\$64,822,633	1.566	\$192,617,358	3.524

Table 9: Sensitivity to Negatively Correlated Benefit/Cost Variance

The Low Case Scenario assumes a cost increase of 20% and a benefit decrease of 20% with a social discount rate of 5%. The High Case Scenario assumes a cost decrease of 20% and a benefit increase of 20% with a social discount rate of 5%

9. Conclusion

This report contains the analysis of a range of remote regional drought projects using rapid cost benefit techniques. The conclusion is it is quite plausible for these projects to have benefit cost ratios greater than one, and would be recommended for a full cost benefit analysis as part of funding and approval processes.

Appendix: Cash Flow Tables

Cost Benefit Analysis: Extended Report

Please note that results displayed on this sheet aren't incremental to the base rate

[illegible][illegible][illegible][illegible]

Appendix 7: Community Consultation RDRP016 Coonamble, Warren and Nyngan

“WHAT THE PEOPLE SAID”

Prepared by Far Northwest Joint Organisation

Contact Belinda Colless
Drought Plan Officer
Far Northwest Joint Organisation
droughtplan@farmnorthwestjo.nsw.gov.au

Drought Discussion		Social	Economic	Environmental
Financial, Health and Relationship Stress Reduced income, continued financial commitments, family expectations – “is difficult trying to hold it all together”		✓	✓	
Drought results in population decline that has flow-on effects for whole of community. • During Drought the cycle of poverty is more pronounced in Coonamble • Town looks uninviting, empty shop fronts as business / population has declined • Unemployment and futile unemployment opportunities – catalyst for population decline • Housing is vacated and left to be vandalised or in need of repairs and maintenance because it's not lived in • Shops and businesses close, people have to travel or rely on freight to access goods and services		✓	✓	
Need to increase population post drought - Our community is not in a position to attract and retain families due to infrastructure limitations 1. Childcare and preschool access – insufficient early childhood places, skilled parents are unable to work and they have moved away from family support 2. Limited suitable housing – rental vacancy rates are 0 to 0.4%; housing standards also an issue as professional people from the city have an expectations 3. Shortage of “lifestyle” blocks to build new houses with space for bikes / horses		✓	✓	
Water Security OK, but could be improved in some areas of Shire 4. Properties in north west sector of shire able to access ‘cap and pipe’ scheme for artesian bores – this was a game changer to have access to water Not all areas had access to this scheme – an extension of this scheme for other areas and in particular “new” bores” would be most beneficial • Feeling that during last drought Warren irrigators “stole” water from Macquarie Marshes for environmental flow • Needs to be additional drought storage in Burrundong Dam • Unfair platform / competition for water access		✓	✓	✓

Drought Discussion				Social	Economic	Environmental
Social connectedness • This was supported by community in the drought – “Rain Dance”, random games of cricket • Need to keep the community connected in the good years to create resilience in the dry years 5. Functions that brought people together – don’t have to be huge, just creating and supporting the idea of “connectedness”. Need to support existing and community-driven events and activities rather than creating imported ‘additional’ events.				✓		
Business Mentoring • More access to business mentoring to assist people with proactive decision making 6. livestock nutrition and trading • decision making based on facts and figures before it’s too late				✓	✓	✓
Media Awareness Campaign • Need to change perception of “farmers” that has been portrayed on the media – farmers in 2024 are pro-active, manage their assets and make decisions – not the bleak, sad stories portrayed on TV and press • Farmers care for their animals and the environment • Need to elevate the message “we need food, so we need farmers, so at least buy Australian” – Red Tractor ad • Why would people move to the bush after seeing all the negative images of drought?				✓	✓	✓
Difficult to find qualified / skilled labour and attract and retain long-term community members • Worse after a drought, when you need to “gear up” quickly to take advantage of growing seasons, markets and improved agricultural conditions. • Affect both on-farm and off-farm businesses as local communities experience economic stimulation • Need to “grow our own” with scholarships / incentives for upskilling youth i.e hex debt cancelled after 5 years like NSW Education staff committing to 5 years rural and remote • Interrupted service provision with short-term contracts or high staff change over makes it difficult to have consistency and continuity of services (i.e health)				✓	✓	
Volunteer Fatigue and perceived reluctance to get involved – this is pre, during and post drought 9. Volunteers are depleted - small communities rely on volunteers to organise functions, services and support in rural communities, particularly communities that have had significant population decline due to drought. • Volunteers are becoming choosy about what they do and who they work with as time and resources are precious – Rain Dance had committed committee, timeframe and clear objective to deliver and disband 10. Too much responsibility and risk to be a volunteer - needing police checks and certs, the cost to obtain, ridiculous red tape 11. Asking volunteers to distribute donated products during drought adds extra burden and also has a negative impact on revenue of local businesses already suffering downturn						

Drought Discussion				Social	Economic	Environmental
Succession Planning is interrupted by drought • No money, time or resources to undertake succession planning • Succession planning is stressful – families often avoid this during already stressful times like drought • Need to have considerations for “Transition” Planning for older farmers to retire • Younger generations find it difficult to see a clear future for themselves and their families as they have little financial control / decision making influence– this can also add to the pressure to move from the community during times of drought and find alternate security				✓	✓	
Poor and expensive trade and tertiary education options • Distance and access to education institutions is a barrier for some families / youth – it’s either “too hard”, “too expensive” with travel and accommodation expenses or in some cases families will move so children can access a broader range of educational institutions				✓	✓	
Buy Local / Local purchasing is really important in drought • “we need to stick together”, so we all make it through • Hampers are a lovely gesture from people but “buy local” vouchers would be BETTER to keep the local economy ticking over and easier to distribute • Hay drives were well intended, but missed the mark with the quality of the hay delivered				✓	✓	
During Drought EVERYONE SUFFERS 12. Assistance for non-ag businesses during drought to prevent closures- if agriculture is suffering, the flow on affect is immediate for local business. Local small businesses (retail, service, trade) don’t have access to financial assistance or large assets to borrow against to access line of credit 13. Power problems; brown outs for long periods – days in some cases					✓	✓
Need for more business planning and mentorships to make informed decisions earlier – programs initiated in last drought were good but need them now to create preparedness / resilience. Businesses that are planners and prepared to make decisions, fair better • Animal nutrition / Destocking plans • Soil health / pasture health / Plans to adapt to seasons				✓	✓	✓
Confidence in economic investment and growth has been stunted by drought – too risky 14. Zonal taxation rewards to stimulate and reward investment – pilot program to get things started • Incentivise moving and starting a business in regional and remote NSW – tax rewards, to encourage productivity = increased population				✓	✓	

Drought Discussion				Social	Economic	Environmental
No continuity of Government Positions (Health, LLS) makes it difficult to get traction and be effective • During drought, if one partner has a secure "government" job and the other is working in agricultural industry – this provides the family with economic stability • Contract terms need to be longer – 12mths is not realistic – need to be 5 years+ so people in government jobs can settle in the community, but a home etc • Some government services could be delivered by working in collaboration with existing businesses i.e support a local spray operator to spray roadside weeds, contract the local vet to undertake LLS work, physio undertake contract work for Health – "collaboration" would assist in keeping local people already settled in the community, in town				✓	✓	✓
All government-funded projects should have a local employment/purchasing bias, especially during drought. 15. All infrastructure and service delivery programs targeting regional communities should include minimum standards for local or regional employment and for purchasing of materials/inputs. This would help drought-proof local economies by retaining workers, stimulating local business at no additional cost to government.						
Secured Financial Loans to provide confidence – Agriculture businesses and small business in towns • Don't want grants and hand-outs – want tools to be more self-reliant • Need for a dedicated rural bank • Long-term bank loans with low interest rates locked in for 20 years – to provide planning confidence to grow businesses in uncertain seasons – 10 years of drought is not unheard of, so a financial arrangement that recognises this.					✓	
Freight Rebates Drive prices up Great idea in principle, but drove up the price of hay – farmers didn't really benefit					✓	



Coonamble Main Street has many empty shops – it's not an inviting look for industry and new business



Post drought, there are still parts of the Coonamble Shire that are quite dry



Mink and Me is a “Fresh” business in Coonamble owned by a Milenial

Drought Discussion		Short / Term	Mid / Term	Long / Term	Responsible
In drought times, Council provide employment opportunities for farmers • i.e heavy earthmoving, locals do the work, off farms and fix roads in dry times; don't get outside contractors; Note: Needs to be compliant with regulations and insurances			✓		Council
Economic Zone • To attract population to our town post-drought – we need to make it easier, this would be a competitive advantage over other regions to access land, housing, jobs, education		✓	✓		Council - to update LEP
Increased population - campaign to attract young people to rural and regional communities • Need to get away from media negatively portraying "poor, unfortunate farmers". • Regional Australia is resilient, younger farmers are early adaptors and use technology to improve economic and environmental outcomes. • Promote the benefits of living in a rural community – support, friendly, small so everyone has connections / relationships		✓	✓	✓	Council
Campaign to attract new residence and increase population – Welcome to Coonamble / welcome to Western Plains		✓			Council
Awareness campaign to city "sell the bush campaign" – there are opportunities in the bush – it's not all bad			✓		RDA / Council
More community gatherings particularly aimed at getting the community together with the view to enhancing community spirit – maybe "pay" someone to organise and have it as fee for service so volunteer resources are not stretched i.e hire a caterer, hire bar staff, pay a cleaner post event, pay an event co-ordinator to organise		✓			Community Groups / Council
Increased water security with more bores for stock and domestic use, dust suppression during drought – taking pressure off existing water sources			✓	✓	Dep Environment
Expand community-owned childcare and preschools – availability of places allows families to remain in the district; expanded services provide more local non-ag employment.					
Support 'building society' type housing developments – providing quality, affordable options for local families and skilled workers; construction employs more workers, local purchasing of materials supports and strengthens local business.					
Fast-track rezoning to allow access to small rural lifestyle blocks – would help attract young families, professionals and retain younger retirees (especially those off the land). Rules around minimum rural lot size are ridiculous in areas where land is readily available.					Council
Return training opportunities to local communities by making local TAFE campuses multi-purpose training hubs – many TAFE courses, including those that support agriculture and related industries, have been centralised to major regional centres. This means increased costs for students to access courses and exacerbates out of town shopping. TAFE campuses are under-utilised and should have stronger relationships with local business and industry for all post-secondary education and training. They should also be used as University Hubs providing study spaces, fast internet access and supported learning opportunities to build and retain skills in the community.					

Submission, [REDACTED] Coonamble, received 14/2/2024

Hi Belinda,

The ideas that were noted last night were great ideas for building our towns and communities. All these ideas we have been trying to achieve and have been spoken about at every meeting. Our shire and community is well aware of these points and working on ideas to achieve resilience. If governments need this in a plan, great!! And if gov will help, even better.

I have 2 children back on the farm with young kids. Our farms support 3 families in the middle of succession planning and transition. There was not a single idea on the board that would have helped my family and farms in the last drought. Which left me feeling down hearted. The drought starts on the farms and spreads through the community.

The things that would help us would be extremely low interest rates in drought. To relieve pressure from banks because farms have to borrow money in droughts and most farms have debt. And keeping staff on so subsidising wages would have helped when we were all under so much stress, to share the workload would have helped. There are already loans with RAA that we can get, great!

I really believe we need a Rural Bank (not private) Government owned and viable to keep taxpayer happy that can adjust to how the climate change going to treat us/ Farmers and rural businesses going forward. Our Farm businesses can't fit in the 9 to 5 world because of climate and it all comes down to how much rain in the gauge.

Insurance wasn't mentioned we need affordable insurance and seasonal protection insurance . But now with the world feel the effects of climate change insurance companies can't afford to offer this. So it would have to be government body this need investigation to see if can be done and be viable to Gov and Rural people.

A game changer would be saving \$20 ton on our grain Freight by having Inland rail to Coonamble like it will do at Narrabri and Narromine. We pay \$47/ton freight to Narrabri and pay \$21 / ton freight in a good year - this would put back in \$35.million to our shires the figures are there to prove this - This would help drought proof by having more income good times to get through hard times. Our area is drained by freight costs. We are the largest Grain receival site NSW. This is a very BIG idea long lasting and empowering farmers and towns for Coonamble but it has to come to our silos not a spur line.

It was hard to get a word in last night and water is very important, and the bad governance of government departments is deplorable. I know this because of interacting with ARTC. The damming report by Kerri Shotts about ARTC poor actions proved the people and the community were right about the despicable behaviour of ARTC to land holders and communities. So, this report may have given Coonamble a chance to put a case forward.

Thanks [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Marra Hall – 14th February 2024 (10 participants)

Drought Discussion				Social	Economic	Environmental
Drought has resulted in loss of population and sense of community • Decrease in younger population coming back to regional communities – other opportunities more exciting and a generation hasn't returned to the land • Decrease in mid-aged productive / skilled people due to drought and they have not returned to community • Increase in carbon blocks has resulted added to population decline – don't need to be on-site to manage. • {Properties are owned by corporate agriculture, O/S investment and superannuation company owned – they don't have the same sense of community and don't have corporate responsibility to "buy local, support local".				✓	✓	
Volunteers are exhausted after drought – really difficult to stay motivated and keep things going post drought • Marra hall has been fixed with grant money but no functions because we're exhausted				✓	✓	
Drought is socially isolating. • Can't afford to be going out – other priorities to spend money on • Communication is a barrier to – poor mobile phone reception – you can't ring up while you're driving and down the paddock/shed, expensive and need knowledge to fit "skylink" or similar • Only see family – this can sometimes magnify family stresses				✓		
Transport and Roads deteriorate during drought and require additional maintenance post drought • Unsealed roads deteriorate during dry periods, making them dangerous • Ambulances are not 4 x 4 and will not travel on roads with water over them or impassable due to wet weather				✓	✓	✓
Drought causes a downward spiral in the local economy – every time the season and economic outlook changes, it's like starting from ground zero again and having to re-resource is expensive and time consuming • Housing stock depleted – housing deteriorates if not lived in, and new housing is difficult to acquire with limited trades, red tape involved in new housing on farm • Post drought it takes time to re-instate a workforce, find places for them to live etc				✓	✓	
Need for more business planning and mentorships to make informed decisions earlier – programs initiated in last drought were good but need them now to create preparedness / resilience • Animal nutrition / destocking plans • Soil health / pasture health • Plans to adapt to season				✓	✓	✓

Drought Discussion				Social	Economic	Environmental
During Drought access to care / schools / education is magnified • No childcare or after school care available for parents considering "off farm" income • Limited access to secondary school due to distance – continuity of boarding school under threat due to expense • To access TAFE trade, students need to attend regional centres – travel to and from training and costs associated with "block" training are generally met by the bank of "Mum and Dad" – this is an additional financial stress during times of drought that some families can't afford				✓	✓	
Isolation and lack of connectivity in drought is amplified – can't just reach out and talk to someone • Limited mobile and internet service to house 16. Aerial extenders available but expensive, need to be fitted by expert and sometimes don't live up to advertised expectations • Phone calls and emails are sent after hours, breaking into "family time" • Limits access to on-line information / communication				✓	✓	✓
Water Security • Macquarie Marshes healthy water system • No water = no stock, if there is water there are still opportunities to feed • no access to piping and capping, sub artesian 300-200 metres dry holes • Have ground tanks, have to do yourself and pay for its care 17. Macquarie River and creeks go dry, Bogan goes dry, no water for stock 18. environmental heritage care - employees have never been past Dubbo(unaware off water shortage to farms)				✓	✓	✓
Makes communities angry to see Government money wasted during drought • Firetrucks had expensive flood equipment added during the height of a drought but government jobs have short-term employment contracts – would be more sustainable for the community to re-direct funds into providing job security in regional and remote towns so people had confidence to become part of the workforce					✓	
Difficult to make decisions post drought • Anxiety in future decision making – is it the right decision or not??? • Need more education to make more informed decisions to reinforce confidence				✓	✓	✓



Marra Hall Consultation – attendees lived in the Coonamble, Warren, Brewarrina and Nyngan Local Government Areas



Above & Below: Macquarie Marshes wetlands - viewing platforms



Marra - Possible Project Development					Short /Term	Mid /Term	Long / Term	Responsible
"Grow our Own" – promote skill development in locals that are already "resilient" and are used to the harsh and sometimes challenging conditions of rural and remote areas – "when the going gets tough – these guys already know what it's like"							✓	NSW State Gov
Increase population = increased access to services • Promotional campaign to encourage people to move to our communities							✓	Everyone
Diversification to increase financial independence during times of drought 19. Off farm incomes should be encouraged and rewarded as part of resilience plan • Alternate energy incomes Solar / Wind / Carbon • Access to communications to support alternate service delivery i.e professionals working from home, on-farm, • Tourism / farm-stay activities						✓		Farmers
Isolation of Drought is further amplified by poor communications • Mobile telephone and internet access is poor and patchy – can't maximise production in the good times to create resilience in the bad times • Businesspeople can't be "mobile" to undertake business communication – they have to stay at home – this really restricts production and opportunity							✓	Telcos, Government, Farmers to install own infrastructure
"Use it or Lose it" or "Promote Local Campaign" • Create a resilient community we need to commit to buying and supporting local business or they will pack up and leave = population decline								Council
Community Resilience Strategy to ensure "absentee landholders" are committed to and invest in the local communities where they have investment land – can't just take from the land and not give to the community.						✓	✓	Council
Promote "buy local" with services provided to Local Government i.e plant, grader hire etc					✓			Council
More Education and mentoring • Improved Cashflow Management Strategies for businesses (agriculture and town businesses) i.e take out the economic peaks (bumper years) and troughs (drought years) through cash management schemes, tax incentives, instant tax write-offs, forward payments • Stock Management, nutrition management and stock Trading					✓			LLS, Farmers, RFCS

Marra - Possible Project Development				
		Short / Term	Mid / Term	Long / Term
Responsible				
Change media portrayal of the regions • Farmers don't want to be seen looking for "hand-outs" but instead would like to be supported. And who would want to move out here post "doom and gloom" drought stories so fresh in city dwellers memories.		✓		
				Council / RDA

Warren Consultation, 14th February 2024 (23 Participants)

Drought Discussion				Social	Economic	Environmental
Financial, Health and Relationship Stress Reduced income, continued financial commitments, family expectations – "is difficult trying to hold it all together"				✓	✓	
Drought results in population decline that has flow-on effects for whole of community. 20. Loss of employment – people move away to find new employment opportunities • Loss families in community – reduced number of volunteers, reduced number kids at school, reduced number kids sports • Flow-on economic effects of community shrinkage i.e. need for less teachers, retail workers, service providers – businesses close • Financial institutions / banks close – have to travel away to access money • When families move, skilled workforce move, making succession planning in the workplace difficult • Houses are left vacant and lack maintenance and care – existing housing stock sits in disrepair. • Young people with no "ties" are more likely to move as it's easier for them to "pack up" and move – once they move it is difficult to get them back after the drought				✓	✓	
Business Mentoring • More access to business mentoring to assist people with proactive decision making • livestock nutrition • livestock trading • decision making based on facts and figures before it's too late				✓		
Water security is poor during drought – historically in Warren during drought periods water security is limited. Without secure water it is difficult to have confidence to invest in business. There is a direct correlation with population and business decline when there is a shortage of water, this limits confidence and investment in the community. • More bore and capping programs – rural stock and domestic use and for road safety and maintenance during dry periods (dust suppression) to take pressure off already scarce water stocks					✓	✓

Drought Discussion		Social	Economic	Environmental
• Council - Dust Suppression and road deterioration – more bores to access for road works, maintenance and construction and available for rural stock and domestic use • Uncertainty with future water allocations • Localised conflicts between irrigators and graziers • poor water security • Permanently increase Burrendong Dam by 20% - as they have done in the past				
Isolation, particularly in drought made worse with poor access to mobile and data and no “connectivity” to assistance. • You can't just “reach out” and talk to someone in the paddock or the shed or on the tractor – you are limited by mobile telephone reception • no mobile service 9km out of Warren • Ability for “on-line” or homebased businesses “on farm” as an alternate income stream (resilience income) is not possible as communications infrastructure does not support • landline services can go down and difficult to report • have to stay on phone for over an hour if problems • poor internet communication, this limits ability to access information, run business, stay on top of markets • Difficult to keep in contact with family and friends – social aspect of “face-timing” relatives to keep in touch		✓	✓	
Volunteer fatigue and perceived reluctance to get involved – this is pre, during and post drought • The same people are keeping the community together • It can be “too expensive” to be a volunteer and people don't have the extra cash so are not in a position to put their hand up – cost of time taken away from work, fuel to travel, many organisations have requirements for training i.e OHS, RSA, going to regional meetings etc • Community relies so heavily on volunteers – city dwellers don't understand importance of volunteers – in small communities no-one gets paid for anything • Too much responsibility and risk to be a volunteer – needing police checks and certs, the cost to obtain, ridiculous red tape - Rotary had to prove they were not terrorists! • It's becoming “too hard” to be a volunteer – easier to just say no		✓	✓	
Reduce Environmental Plan red tape in the bush - Reduce the red tape to make life in the bush easier to encourage industry and development i.e industrial buildings, worker accommodation – if this was easier it would help “tie” people to communities in drought and prevent them from leaving • Need for more lifestyle blocks as an attraction for young families / farm workers / business people • DA required for intensive feeding operation for over 999 / head – there are lots of intensive feed operations in drought that are not identified for this reason – red tape is too hard, takes time, requires specialist knowledge and is expensive, so just ignore it		✓	✓	✓

Drought Discussion				Social	Economic	Environmental
Limited Access to electricity infrastructure – limiting access to alternate industries that don't rely on water and are alternate industries and incomes for communities in drought					✓	✓
• Wind and solar Industries need access to the grid • Power problems; brown outs for ong periods – day in some cases						
Accessing skilled labour, pre, during and post drought seems impossible so businesses are under resourced to grow, suffer burn-out of existing staff or move to where they can find skilled labour.				✓	✓	
Ability to “grow your own” in terms of up-skilling local community has challenges;						
• no agricultural teachers at high school (eg Ag had to stop) • No local access to trade education – have to travel far away • TAFE online - poor delivery and limited choices Riversmart project, unable to get numbers and go ahead						
No continuity of health services - this becomes magnified during drought as community do not have a familiar relationship with health providers. Every time you go to the GP you need to “re-explain” your circumstances. Eventually you just give up going to see the GP. This attitude does not support or encourage people to reach out about mental health issues.				✓		
Examples • difficulty getting staff – Drs, Nurses and auxiliary staff are constantly changing • No permanent GP – rely on locum GP's to service community • Families of GP's don't live here, poor homelife for GPs • Agency nurses, burn out and leave						

Warren - Possible Project Development					Short /Term	Mid /Term	Long / Term	Responsible
In drought times, Council provide employment opportunities for farmers						✓		Council - Council already has self-help scheme in place but needs assistance
i.e heavy earthmoving, locals do the work, off farms and fix roads in dry times; don't get outside contractors; The Red Scheme - pilot scheme Warren Shire; Use local labour where possible Note: Needs to be compliant with regulations and insurances								
The empty buildings in the main street make the town look unappealing. Buildings require maintenance / make-over.						✓		Owners / Chamber Commerce / Council / Facilitation
• Is it possible to repurpose buildings? Encourage small businesses / home businesses to take up residence. • Create a “Hub” for part-time small businesses to have a shop front								

Warren - Possible Project Development				Short /Term	Mid /Term	Long / Term	Responsible
Take advantage of demand for 'rural lifestyle blocks' To attract population to our town post-drought, is it possible to open-up more life-style blocks to encourage young families, industry and trades to move to Warren Additional lifestyle blocks for Warren area					✓		Council to update LEP
More tourism infrastructure to support tourism as an alternate industry to agriculture • Need additional accommodation and existing accommodation needs updating • Additional Eco-tourism product – promotion and access to the Macquarie Marshes • Activate rural 'Air B n B' rural style with incentives / workshops to assist people to get "business ready" • Activate City dwellers to experience rural and environmental tourism – Brisbane, Sydney, Melbourne, Canberra – "Three Rivers visitation – Castlereagh, Bogan and Macquarie Rivers"					✓		Tourism Operators / Council (Destination Macquarie Marshes plan being developed)
Increased population - campaign to attract young people to rural and regional communities. • Need to get away from media negatively portraying "poor, unfortunate farmers". • Regional Australia is resilient, younger farmers are early adoptors and use technology to improve economic and environmental outcomes. • Promote the benefits of living in a rural community – support, friendly, small so everyone has connections / relationships				✓	✓		
More local ownership of water to ensure we have secure water for production • stop overseas interests from owning our natural resource						✓	Murray Darling Basin Authority / Council facilitating
Campaign to attract new residents and increase population • Welcome to Warren / welcome to Central NSW • Events and media • Warren Prospectus for new business / industry,				✓			Council
Awareness campaign to city "sell the bush" • Promote the slogan "want to help? Why don't you come for a visit?" • "Drought can be positive, and every drought is different" but it's even more difficult to manage when you don't have the same tools as everyone else in more populated areas – ie technology, weather radar, access to information and training • Close the "culture" gap between country and city people					✓		RDA / Council

Warren - Possible Project Development					Responsible
		Short /Term	Mid /Term	Long / Term	
More community gatherings particularly aimed at getting the community together “pay” someone to organise and co-ordinate events and have it as fee for service so volunteer resources are not stretched i.e hire a caterer, hire bar staff, pay a cleaner post event, pay an event co-ordinator to organise		✓			Community Groups / Council
Increased access to water - Funding availability to access more bores for stock and domestic use – taking pressure of existing water sources - Dust suppression during drought for road restoration and rehabilitation			✓	✓	Dep Environment / Council
Water Security Activities - Gin Gin Weir – reconstruction to allow for secondary storage capacity. - Burrendong Dam – increase to 120% capacity to be made new 100% capacity. 21. Off River Storage at or before the Nyngan off take to secure water supply to Warren Shire (industry, environment, irrigators, domestic supply) - Lining of supply channels - Albert Priest Channel and piping of Trinton Mine at Nyngan to reduce evaporation			✓	✓	NSW Water



Warren – many vaccant shops in the main street.

An observation – rural communitres have vaccant pubs but active bottle shops – community are not socialising at the Pub but deciding to have a drink at home.

Submission, [REDACTED] Warren, Received 16/2/2024

G'day Belinda,

Thanks to a few storms around last night and subsequent decent falls of rain I've been able to get into the office and tidy up a few jobs! It was great to be a part of the forum on Wednesday night and hear you speak and also listen to the concerns/ideas of those present. My apologies that I had to leave early. I figured that I could shoot you an email or have a chat on the phone at a later time!

The thought I had was around Small businesses in those 7 LGA's (20% of the state) that are as prone to any to the effects of Drought. Although in saying that, I wonder if the following could be applicable to rural areas nationally? Primary Producers obviously have some really useful tools in place at Tax time to reduce taxable income, one of which are the FMD's.

It got me thinking that there should be an opportunity for a small business (non-primary producing business) to participate in a similar scheme? We talk about the 'peaks and troughs' of Rural life as far as production goes and climate dictates. It would be a nice thought that small businesses could have the option of putting some pre-tax funds away at the end of June to go into a 'Small Business Management Deposit' (SBMD). Funds would be locked up but only released back to the Small business to use once their LGA was Drought declared?

We all know that some Overheads are really hard to reduce at times with permanent staff wages being one. We talk about ways we can retain our Rural Staff and avoid the 'Brain drain' which occurs in an Easterly direction once they are let go due to cost pressures. So, I thought something like this might help? This would give small businesses potentially a buffer/insurance policy for the next period of drought and we all know the clock is ticking.

Some interesting ideas around rural housing too I thought. Are there already existing schemes with rural housing between Government and private enterprise? I don't know how it would look like but I just think of those tunnels and tollways down in Sydney that seem to have these partnerships in place?

Also, does Decentralisation only apply to centres like Bathurst, Wagga, Albury, Tamworth etc? Maybe government need to consider incentivising businesses to move certain industries out West like low interest loans or tax breaks?? Yes, yes I know, we need housing!!

That's about as far as my mental intuition (if you call it that!) will handle for a Friday afternoon!

Best wishes,

[REDACTED]

[REDACTED]

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Nyngan Consultation – 15th February 2024 (11 Participants)

Drought Discussion		Social	Economic	Environmental
Mines are supported by the community on the whole and provide an alternate income stream to the Nyngan community during times of drought • Employs locals but mainly FIFO – these are generally specialised positions • Mining stabilizes town economy • Opportunities for our kids for employment • Farmers can work, extra income		✓	✓	
Financial, Health and Relationship Stress • Loss of income is difficult, trying to balance business and family pressures It's disheartening when you have a second income as a diversification strategy for financial security but its taxed. 22.Drought is depressive - dust storms, brown gets you down, environment is dying around you and losing value of natural assets		✓	✓	✓
Drought results in population decline that has flow-on effects for whole of community. • Loss of population – this is a killer – friendship groups are broken up, school class numbers decrease, kids sporting activities affected, reduced people living in Nyngan affects community multiplier effect. Flow on to reduced population is less volunteers, less community functions and gatherings • Shops closing and lots of vacant shops, no machinery dealerships • Fluctuation of population affected stability of childcare numbers – this affected its financial viability and as a community run organisation it posed too much risk for volunteers, so Shire took it on to provide security for childcare provision in the town.		✓	✓	
Community feel exhausted or “Planned Out”, with no or few changes to the political environment surrounding drought • Difficult to manage cashflows with such diverse seasonal conditions, sometimes it feels impossible to manage and stay on top of the social, environmental and financial changes being experienced. Government red tape does not help or encourage progress • Why are droughts not natural disasters, “frequent climate events” Government should have a policy and plan by now - still not available • sold cattle in the middle of a drought and still had to pay tax • Farm Management Deposits are difficult to administer • Some people specialise on getting the “free” money instead of trying to be self-sufficient • when you create money in good times, there is a tax bill - no balance for droughts		✓	✓	

Drought Discussion				
	Social	Economic	Environmental	
Water security is poor during drought – there is no basin under Nyngan – water security is dire as there are no other alternatives. • Without secure water it is difficult to have confidence to invest in business. • There is a direct correlation with population and business decline when there is a shortage of water, this limits confidence and investment in the community. • water restricted by Macquarie River flows • Town is on water restrictions even outside of "Drought" declarations • Farmers rely on surface water and ground tanks to harvest their own water • Stop saving water for environment – there is conflict with Nyngan residents and supporters of environmental flows to the Macquarie Marshes. There is a feeling in Nyngan that the Macquarie Marshes environmental flows are not controlled and take water essential for the survival of the Nyngan community.		✓	✓	
Inability to manage business, particularly in drought made worse with poor access to mobile and data and no "connectivity" to assistance. • Mobile lots of areas with no service – businesses in the city or regional towns don't have issues like this and the lack of understanding during drought is very frustrating 23. Have to spend \$15K on boosters or Starlink- no rebates and difficult to install if you're not an IT person	✓	✓		
Volunteer Fatigue and perceived reluctance to get involved – this is pre, during and post drought • No volunteers and workers, same 5 people volunteer for everything 24. Our volunteers are ageing, reflective of our ageing population • Financial pressures require people to work long hours and sometimes multiple jobs – there is no time to volunteer • Eg's of volunteer decline - Vinnie's open 3 days a week, no junior cricket, no tuckshop at school -mothers working, no rotary, no apex anymore Too much responsibility and risk to be a volunteer - needing police checks and certs, the cost to obtain, ridiculous red tape - Rotary had to prove they were not terrorists! • It's becoming "too hard" to be a volunteer – easier to just say no	✓	✓		
Reduce Environmental Plan Red Tape in the bush - Reduce the red tape to make life in the bush easier to encourage industry and development • Red tape and Govt regulations are not encouraging for development in the bush 25. New housing subdivision -2yrs and still no progress, biodiversity regulations put it back 2 yrs • same rules and regulations required in Nyngan as in the middle of Sydney • too many barriers to develop in Nyngan • same price for investment as in a major city but less return – no confidence to invest Need small "lifestyle blocks"	✓	✓	✓	

Drought Discussion			
	Social	Economic	Environmental
Accessing skilled labour, pre, during and post drought seems impossible so businesses are under resourced to grow, suffer burn-out of existing staff or move to where they can find skilled labour. Ability to “grow your own” in terms of up-skilling local community has challenges; • visiting OT • lack mechanics and trades people • short term contracts and people come and go - no security • inconsistent service delivery • mining takes workers as more attractive 7 on 7 off, work when you want	✓	✓	
No continuity of health services - this becomes magnified during drought as community do not have a familiar relationship with health providers. • Agency nurses, burn out and leave • Bogan Shire Council now manages the Medical Center in Nyngan to ensure continuity of service provision – This is not a traditional council role that Council is remunerated for through rate provisions. Council is “filling” the gap to meet community expectations.	✓	✓	



LEFT: Restored Nyngan Town Hall

RIGHT: Empty Town Shops in Nyngan



LEFT: Empty Town Shops in Nyngan

RIGHT: Empty Town Shops in Nyngan



Nyngan- Possible Project Development					Responsible
	Short /Term	Mid /Term	Long / Term		
Community Gatherings that are pre-organised and not run by volunteers – people want a break. Evident in the smaller villages and hamlets where it's difficult to get to town to socialise	✓				Council
Maintaining Local Economies during drought - Buy local campaign – keep money stimulating local economy - Instead of people "giving" hampers etc, perhaps vouchers for local grocery shops? - drought assist non farmers to help our community – this will assist with population and employment, support local businesses and existing services - Encourage "home businesses" to have a shopfront		✓			Owners / Chamber Commerce / Council / Facilitation
Attract population to our town post-drought - Need for more life-style blocks to encourage young families, industry and trades to move to Nyngan. - promote the town, cheap to buy, has hospital and schools, lots of jobs, 2 hrs to Dubbo, mines - Promote the benefits of living in a rural community – support, friendly, small so everyone has connections / relationships - Campaign to attract young people to rural and regional communities		✓			Council - to update LEP
Flatten out the peaks and troughs of agriculture cash-flows Tax incentives / economic zone - reward people for having a go and sticking it out			✓		Aust Government
Infrastructure for Alternate Industries i.e electricity, freight routes (rail and road) - Salt bush feedlots - Solar farm		✓	✓		Aust Government
Water Security Plan for new infrastructure along the Macquarie River Ensure water security for domestic, industry, stock and farming	✓	✓	✓		Aust Government

Phase Two - Project Identification

Sub-Group LGA Representation- RDRP016 – Project Identification and Development Ideas

The below group provides a cross-section of LGAs, gender, age and interests, industry, community and Council representation.

The following have been approached to undertake 2 x 1 hour facetime group interviews to discuss and come up with viable ideas for Project Implementation for RDRP016 to participate in the following;

- 1st Facetime Meeting – 7pm to 8pm Wednesday – discuss ideas
- Participants receive an e-mail outlining ideas for consideration to narrow down to 10 projects
- 2nd Facetime Meeting – 7pm to 8pm Wednesday – finalise ideas

Project Priorities

- **Projects do not over burdening existing organisations / individuals (volunteers)** with already limited resources
- Ensure the **lead organisation has adequate capacity and resources** to execute the project
- Be community-led, are relevant, integrated, targeted, inclusive, and reflective of community and stakeholder needs.
- Prioritise and focus on developing drought resilience through a lens of regional development.
- Be achievable
- Be cost effective (total budget of \$200K with the view to sourcing additional funding or working in partnerships with other organisations i.e LLS)

RDRP 004 - Idea Generators Consultation Meetings

1. Media campaign – “Visit the Bush” (Mid Term)

- Elevate more positive picture of regional and remote Australia and in particular “farmers”.
- Educate children about where their food comes from and why farms are important and valuable – without farms we don't eat.

- Encourage people to visit the bush – just a short burst of economic stimulation will assist with much needed cashflow and business confidence.
- Promote our communities as a viable place to consider investing in and raising a family – “move to the bush”

2. Develop a water security plan for Coonamble, Warren and Nyngan (Long-term)

- Incorporate river and bore water options
- Include town, village, stock, industrial, irrigation and domestic usage
- Investigate efficiencies in water delivery and storage
- Advocate for communities and financial assistance to implement

3. Mental Health Awareness in the bush (Short to mid-term)

- Use existing organisations / networks to promote mental health awareness i.e Western Plains Rugby Union – provide funding / resources for a “mental health awareness” round.
- Have a healthy check list ” i.e mental health, skin check, breast / cervical cancer check / prostate check -complete 3 and will a prize (Conversation starter shirts (Tade Mutt)
- Mental Health 1st Aid, particularly for rural and remote communities that don't have a full-time mental health presence in their community.

4. Community Gatherings (Short-term)

- Community want to keep the “support” groups / events that occurred during the drought going forward – this was a great way to create support networks , share information and tackle isolation, BUT we don't want to put additional pressure on our volunteers – just simple “get togethers” – no dressing up, no catering, nothing fancy just basic to organise and run

5. Education / Workshops (Short to mid-term)

- Liked on-farm workshops during the drought, with practical / visual approach where appropriate.

- More access to business mentoring to assist people with proactive decision making – having confidence to make a decision is a huge help to business and mental health.
- livestock nutrition – when, where and how? Knowing sometimes it's not worthwhile to persist and better off to sell.
- Livestock trading – understanding markets to “bounce back” quicker post drought.
- Financial decision making – what are the key inputs / outputs to be monitored.
- Succession planning

6. Telecommunications Review (Mid-term)

- Gathering data and information on the real effects of inadequate communication systems in Western NSW and the impacts they have on mental health, safety and reduced productivity during drought
- What will be the benefits of a much anticipated “Starlink” connection to communities with limited or zero internet or telephone access?

7. Stimulate local economies / main streets with more shop front activity

- “Community Hubs – pooling of resources to purchase a building with multiple users
- Succession planning for small business – How can a transition occur to allow younger people to buy into small business
- Promote community benefits – work and business opportunities

8. Councils to review LEP's to encourage industry and development

- provisions for additional lifestyle blocks
- Make it easier to build / locate worker accommodation on farm –acknowledge that some Councils don't have a full-time Health and Building service.

9. Economic Zone strategy developed / reviewed for consideration by government to include;

- Provisions and pre-approvals for development to encourage investment. i.e grain storage sheds, intensive feeding operations
- Incentives and rewards for maximising production – rewarding optimal behaviours.

10. “Grow Our Own Program”

- Encourage youth from the area to develop skills / access education to bring skills back to the bush.
- NSW Government offers incentives for teachers, nurses, police officers, ambulance to undertake contracts in rural and remote areas. Instead of “importing” skilled people to a foreign community (rural and remote), why not turn the program around to encourage easier access for bush youth to gain skills and bring them back to the bush? They will be more likely to stay in the long-term.

