Far North West Joint Organisation

Regional Drought Resilience Plan

RDR Plan - 004

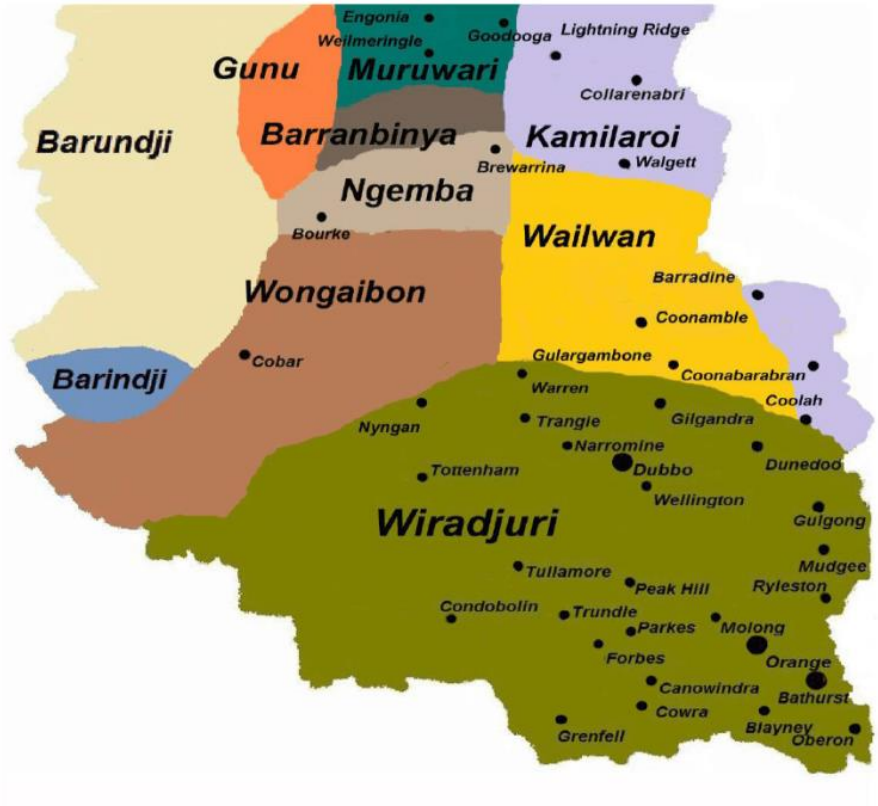
Far Northwest - Bourke Shire Council, Brewarrina Shire Council, Cobar Shire Council and Walgett Shire Council

June 2024

Acknowledgement of Country

We acknowledge the traditional custodians of the lands we are on, including the Ngemba, Wongaibon and Kamilaroi 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.



Source: Tourism NSW – Aboriginal Language Map

Foreword

The challenges of persistent aridity and the increasing frequency and severity of drought in Far North West New South Wales are not only a testament to the harsh realities faced by our communities, farmers, and landscapes but also instigates resilience, innovation, and unity. The Regional Drought Resilience Plan (RDR Plan) emerges from a collaborative effort involving Bourke Shire Council, Brewarrina Shire Council, Cobar Shire Council, Walgett Shire Council. 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 they 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.

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 well-being 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.

The RDR Plan lays out strategic priorities and actions that will help us reduce the impact of drought, support our communities during times of scarcity, and ensure the sustainability of our agriculture, local businesses and natural resources. By collectively advancing 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.

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Signed by Ross Earl

Ross Earl

Executive Officer

Far North West Joint Organisation

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Introduction

The Regional Drought Resilience Planning program ('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.[1] (FNWJO), which is a representative body for the three Shire Councils of Bourke, Cobar and Walgett, 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, Brewarrina, Cobar, and Walgett Shires. The second consortium, known as the Northwest Region, comprises Bogan, Coonamble, and Warren Shires.

This Regional Drought Resilience Plan (RDR Plan-004 or The Plan) relates to the Functional Economic Region of Bourke Shire, Brewarrina Shire, Cobar Shire and Walgett Shire. The Plan was co-designed with these Councils and their respective communities, and for the purpose of RDR Plan-004 will be referred to as the **Far Northwest Region.**

The plan included:

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

People, Culture, and Community	Economy	Landscape and Natural Environment	Infrastructure and 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.

[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.

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 include:

Pillar 1 Planning and Monitoring	Pillar 2 Responding to Drought Events	Pillar 3 Building Future Resilience
•Implementing drought monitoring, early warning systems, and responsive planning.	•Identifying vulnerable sectors and groups for targeted support during drought.	•Undertaking measures to mitigate drought impacts and enhance long-term resilience, including initiatives across the outlined priority areas.

The Far Northwest region of New South Wales is confronted with a multifaceted spectrum of challenges that are predominantly influenced by shifts in demographics, economic dependencies, and vulnerabilities associated with climate change. Among the climatic concerns are the anticipated increases in temperatures, modifications in rainfall patterns, and the escalation of bushfire risks.

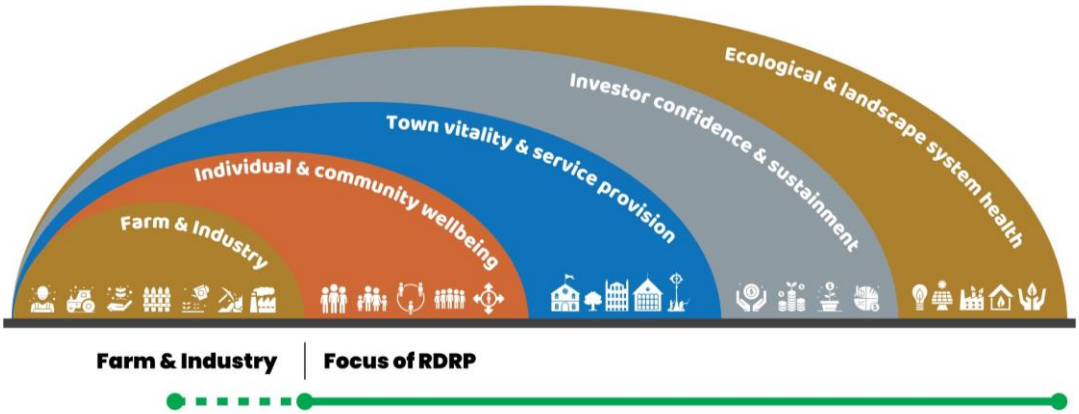


Figure 1 - Drought impacts on social, environment and economy (Source: Adapted from Meridian Urban)

The Far Northwest region is grappling with significant demographic transformations, including a projected population decline of 11% over the forthcoming 15 years[2], an increasingly aging demographic, and the outward migration of younger generations. This migration is largely attributed to the pursuit of opportunities beyond the traditional agricultural sector, which is compounded by concerns regarding work-life balance and the uncertainties brought about natural disasters.

These demographic shifts pose a considerable threat to the social and economic framework of the region, through reduced skilled workforce, aging workforce and pressure on

[2] NSW 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.

volunteers and business to do more with less. Strategies are essential to not only retain the current youthful populace but also to attract new, younger residents to the region, thereby ensuring its long-term viability and prosperity.

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

These factors collectively underscore the necessity for the implementation of robust adaptation and mitigation strategies. Such strategies are essential to ensure the protection and sustainability of the region's agricultural productivity, biodiversity, and the overall health of the community.

To provide a geographical context for the Far Northwest Region, RDR Plan-004:

- Bourke Shire is located on the Darling River at the crossroads of the Mitchell and Kamilaroi highways and the Kidman Way. It is home to the Toorale and Gundabooka National Parks. Bourke Shire Council has a population of 2,348 people (ABS 2022), an area of 41,598 square kilometres, and includes the villages of Byrock, Enngonia, Fords Bridge, Wanaaring, and Louth. Additionally, Bourke is known for its small stock abattoir specifically built for processing goats, a rapidly growing commodity.

- Brewarrina Shire, bordering the state line of Queensland in North Western NSW, is located on the Barwon River and intersected by the Kamilaroi Highway. Its agricultural land is predominantly used for livestock grazing, with cotton growing as a significant part of its irrigated production. Brewarrina Shire Council has a population of 1,431 people (ABS 2022), an area of 19,162 square kilometres, and includes the villages of Brewarrina, Goodooga, Weilmoringle, New Angledool, and Gongolgon.

- Cobar Shire sits at the intersection of the Barrier Highway and Kidman Way in Western NSW and has road and air links to most of Australia’s capital cities. Notably, there is an air service to Sydney (Monday to Friday), providing further connectivity. The region has rich deposits of copper and a significant goldfield. Cobar Shire Council has a population of 4,046 (ABS 2022), an area of 45,575 square kilometres, and includes the town of Cobar and villages of Euabalong, Euabalong West, Mount Hope, and Nymagee. However, there is no passenger rail service; travel to Dubbo is serviced by coach.

- Walgett Shire is situated on the banks of the Barwon River in Central West NSW. The Kamilaroi and Castlereagh highways travel through the Shire, which relies heavily on road freight for its agricultural products. Agriculture in Walgett focuses predominantly on livestock farming, complemented by a strong crop farming industry and valuable opal mining. Walgett Shire Council has a population of 5,516 people (ABS 2022), an area of 22,308 square kilometres, and includes the towns and villages of Walgett, Lightening Ridge, Collarenebri, Burren Junction, Carinda, Rowena, Cumborah, Cryon, Come by Chance, Glengarry, and Pokataroo.

Bourke, Brewarrina, Cobar and Walgett Councils Map

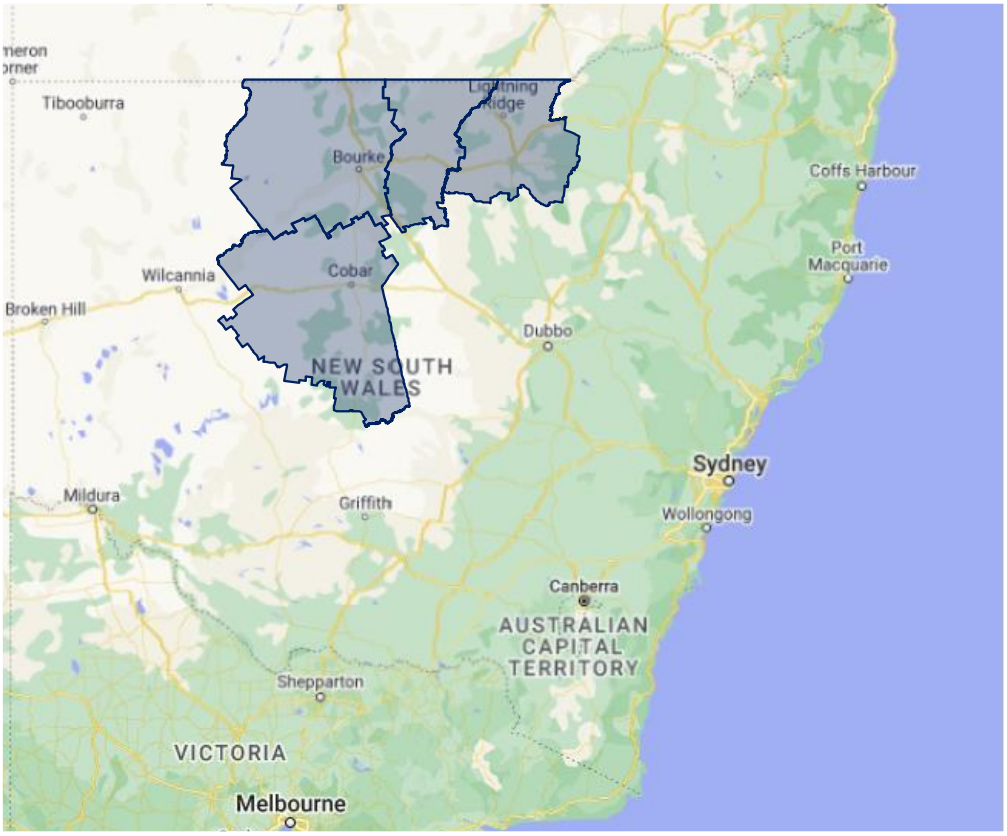


Figure 2 - Map of NSW with Bourke, Brewarrina, Cobar and Walgett Shire Councils highlighted. (Google Maps, 2024)

Vision

In the Far Northwest Region, our resilience against drought is forged through collaboration and co-design with our communities and councils. Our vision is to cultivate a well-prepared and robust community, where every sector—agriculture, business, local governments, and community members—works together to sustain our way of life and enhance regional well-being.

Amidst the inherently arid and harsh landscape of our region, we focus on actions that protect our natural environment, strengthen our local economy, and enrich the social fabric of our community. This vision is built on a foundation of innovative practices, nurtured by strong local networks, and shaped by the diverse voices of our region. Through this collective effort, we convert challenges into opportunities for growth and adaptation, ensuring we emerge from each drought more connected and resilient than before.

Our strategy is dynamic and inclusive, continuously refined through dialogue with our community and adaptive to changing climatic conditions. It relies on proactive planning, strategic investments, and collective action. This co-designed approach ensures that each initiative and project not only aligns with but actively supports our shared objectives. By moving forward together, we safeguard our region's vitality, preserve our natural resources, and build enduring resilience to drought.

Drought Resilience at a Glance

The Drought Resilience Logic Map 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. This map illustrates how specific inputs and planned initiatives translate into concrete outputs and measurable outcomes, directly linking back to the vision of a robust community, empowered by innovative practices and strong local networks. It outlines the causal relationships between each stage of the process, from initial situation assessments to the realisation of long-term resilience goals.

The map serves as a focused overview, ensuring that every element of the plan is aligned with key objectives—namely, preserving regional vitality and managing resources sustainably. It operates as both a planning guide and a communication framework, offering stakeholders a succinct visualisation of how their efforts support the region's overarching goal of achieving durable drought resilience. 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.

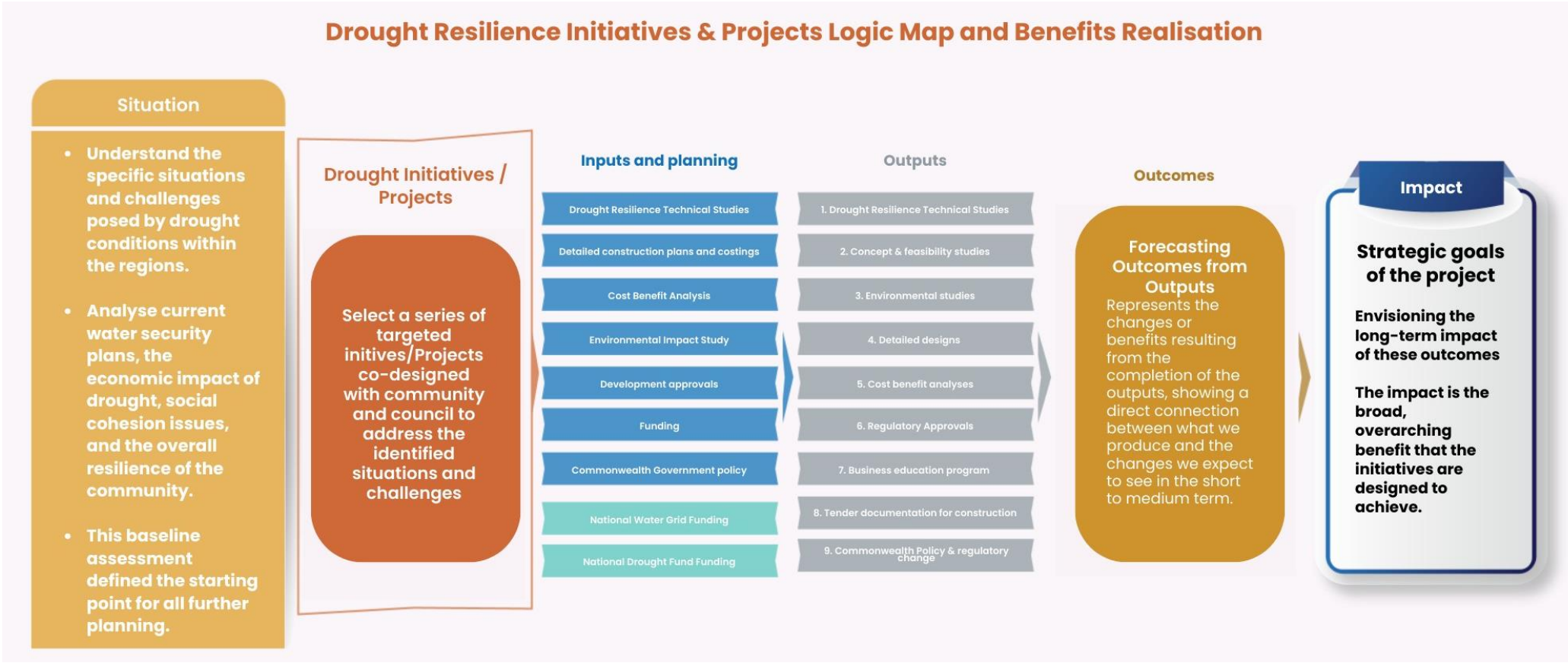


Figure 3 – Drought Resilience Logic Map (The Stable Group, 2024)

A Plan for Drought Resilience

The *Regional Drought Resilience Planning (RDR PLAN) program* is one of the five focus areas of the Commonwealth Government's *Future Drought Fund*. The NSW RDR Plan program 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 Bourke, Brewarrina, Cobar and Walgett Shire Councils are to:

- Develop the agricultural sector's self-reliance and economic performance.
- Develop the environmental resilience and natural capital of agricultural landscapes.
- Strengthen the social capital and wellbeing of the communities.
- Understand and plan for the region's current and future drought resilience by identifying actions, pathways, and opportunities for mitigation, adaptation and improvement.

To further the collective efforts of the FNWJO and the Bourke, Brewarrina, Cobar, and Walgett Shire Councils in preparing communities to manage future and extended periods of drought, as well as improving water security, there is a need to identify projects for inclusion in the RDR Plan.

This plan identifies the priority projects (including an implementation pathway), to achieve the dedicated outcomes and objectives of the RDR Plan.

Strategic Alignment

The Far 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 RDR Plan also has strong alignment with national, state, regional and local plans, strategies and policies including:

- **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.**
- **FERs and REDs applicable to each LGA.**
- **LGA IWCM and Local Water Utility.**
- **Regional Water Strategy for LGA.**
  - 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 Far 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
- Foster connectivity within and across the communities in our region, contributing to great social capital, well-being, and security.
- Empower these communities to implement transformative activities that enhance their resilience to drought and support sustainable natural resource management.
- 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 Far Northwest region: incorporating Walgett, Bourke, Brewarrina and Cobar 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
    - Consultation with the Bourke, Brewarrina, Cobar and Walgett communities.
        - Engaged in widespread consultation with 92 diverse community representatives across the Bourke, Brewarrina, Cobar, and Walgett regions, reflecting a multi-hat community spirit, evident from the 10 community consultation gatherings.
        - Captured a broad range of interests, from Local Shire Councillors to cotton ginners, health workers, and environmental groups, among others.
        - Throughout the consultation period, various media channels encouraged community participation.
    - Initial identification of the Council's priorities.
    - Review of related Federal and NSW Government policies, initiatives and potential assessment criteria related to potential projects under the program.
    - Review of over 40 community strategic plans, economic development strategies, drought management plans, regional water strategies, etc; in order 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 Regional Drought Resilience Plan, which provides a high-level summary of the findings. The Plan includes actions and interventions to mitigate drought impacts in the region.
    - Further engagement and visits to the Bourke, Brewarrina, Cobar and Walgett regions.
    - Following the workshops, four written submissions and three telephone calls offered more insights, rounding out the understanding of the community's concerns.
    - Development of Technology Report, listing the Priority Drought Resilience Projects and information developed for each Project.
4. An Investment Framework
    - Development of a pathway for each of the priority projects to be taken forward.
    - Provision of the draft plan for comment by the FNWJO and Councils.
    - Provision of the final plan to the FNWJO.

The Stakeholder Engagement Plan and Consultation Report can be found in Appendix 4.

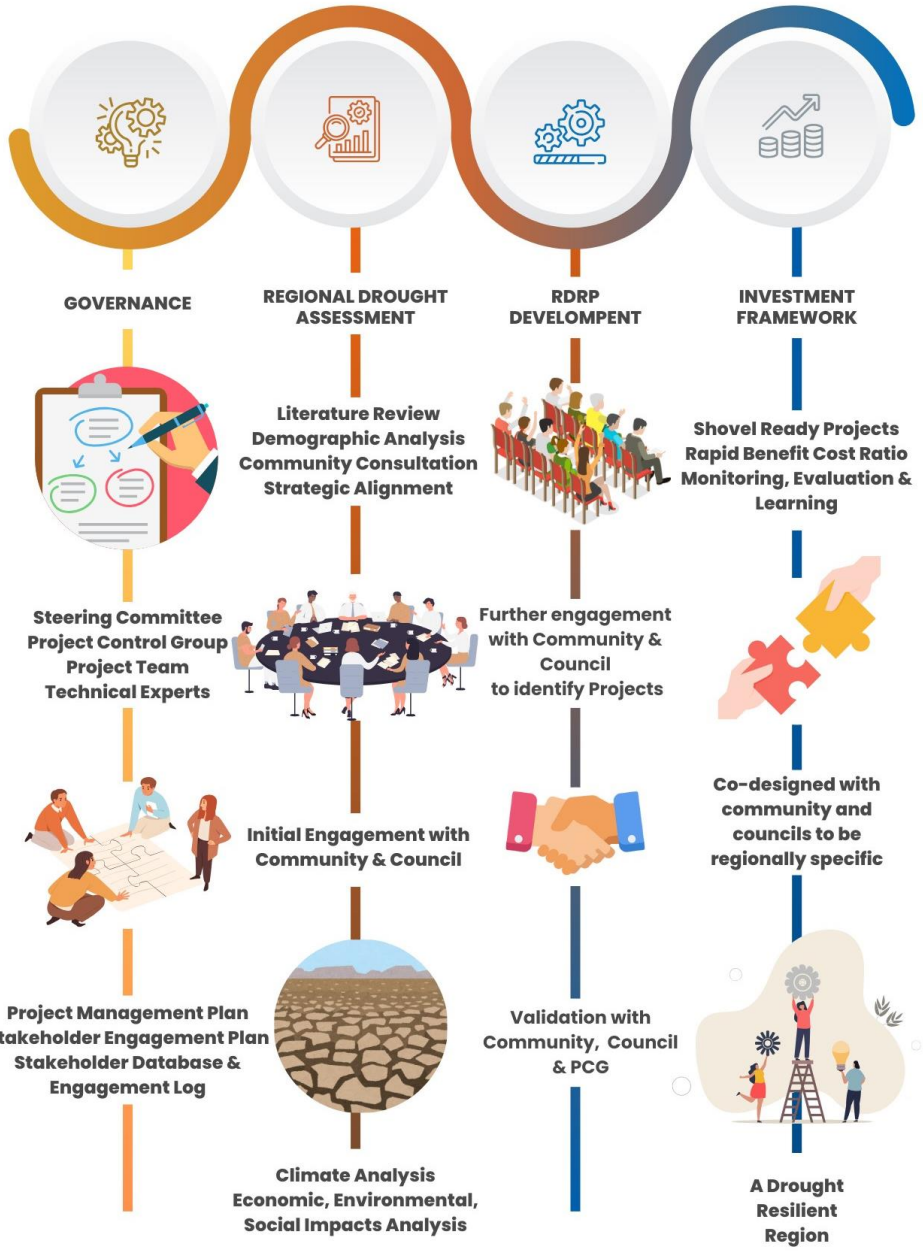


Figure 4 – Process for RDR Plan Development. (The Stable Group, 2024)

Background Contexts – Key Inputs

This plan draws from, complements, and builds upon many important works in developing a regional profile and identifying the impacts of past and future droughts. Background context and key inputs are referenced in Appendix 2.

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. This included contributions from the Stable Group and the Far Northwest Joint Organisation. The Project Reference Group provided essential local insights, helping to refine strategies and define drought resilience actions.

In February, from the 9th to the 19th, initial consultations with communities in Bourke, Brewarrina, Cobar, and Walgett led to the development of a long list of projects (Appendix 3). These were further refined through a second round of consultations to align with community priorities, ensuring that the proposed actions met local needs. Further sessions, conducted via Microsoft Teams, engaged representatives from all four Shires, despite lower attendance compared to earlier meetings. Further community consultation was conducted, and a survey was circulated to gather additional input on project prioritisation, receiving feedback from nine community members.

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

The stakeholder engagement extended over a significant period, drawing on a broad spectrum of the community, which included a multitude of organisations and businesses. This 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.

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 Far Northwest NSW.

Regional Profile

The portion of the Far Northwest region which is covered by this plan covers an area of 127,268 km^2, and includes the Bourke, Brewarrina, Cobar and Walgett Shire Councils (Figure 5). It is home to approximately 13,341 people.

The region is located on Ngemba and Gamilaraay Country and resident Aboriginal language groups include the Ngiyampaa, Wangaaypuwan, Wayilwan and Gamilaroi people.

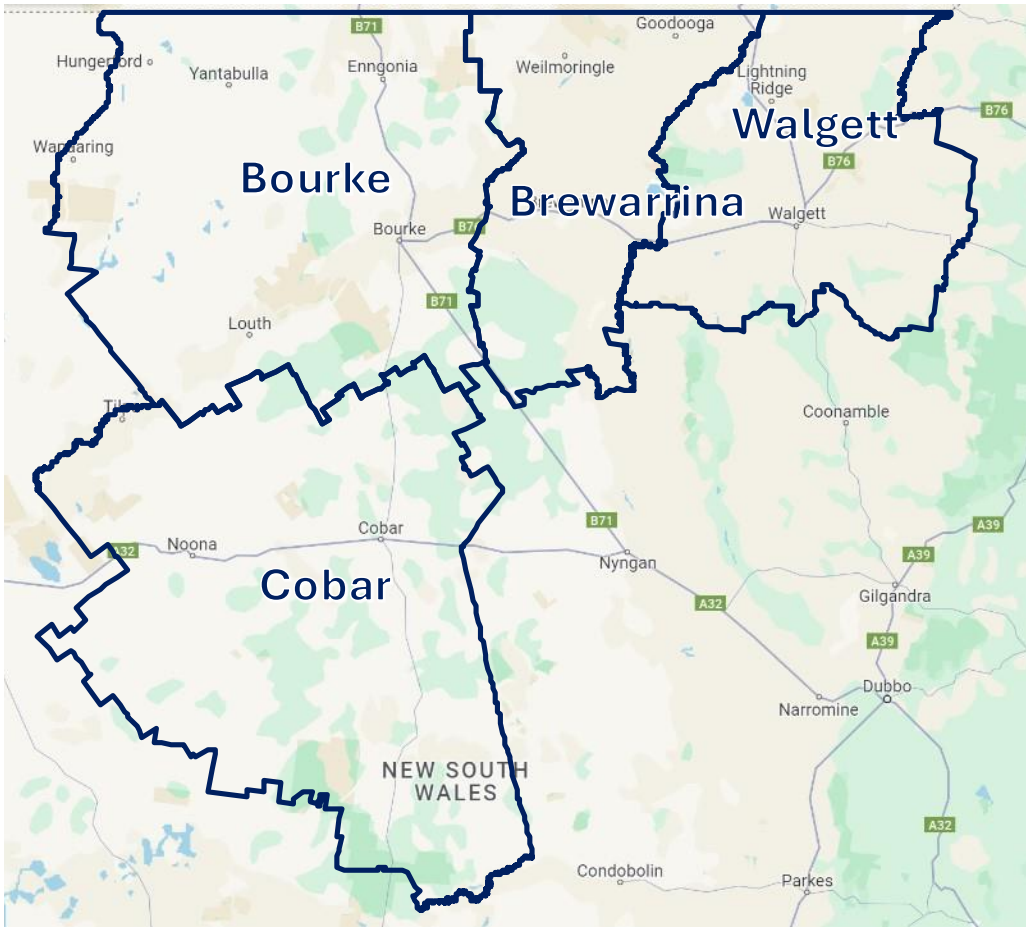


Figure 5 – Map of Region that the RDR Plan covers with Bourke, Brewarrina, Cobar and Walgett Shire Councils labelled. (The Stable Group, 2024)

The key-socio-economic statistics for the Far Northwest regions and each of the four LGAs.

	Bourke	Brewarrina	Cobar	Walgett
Population	2,340	1,356	4,059	5,253
Australian Digital Inclusion Index	64.2	59.1 (Lowest in the State)	66.1	62.4
Projected Population (2041)	1,556	931	2,555	3,732
Unemployment Rate	2.7	7.1	3.2	6.7
Median Age	37	36	37	44
SEIFA 2016 Socio Economic Index of Social Disadvantage	954	866	937	896
Aboriginal and Torres Strait Islander Peoples	708	697	579	1,113
Number of Local Businesses	333	129	465	761
% Aboriginal and Torres Strait Islander Peoples	30.3	51.4	14.3	21.2
Population that Need Assistance due to Disability	103	70	180	1643
% People who speak a language other than English at home	5.4	3.8	6.7	9.6
Decline in Population 2001 – 2021 (%)	-39.8	-34.2	-1.2	-36.8
Median Total Personal Income ($/yr)	44,824	28,756	46,8	28,912
Decline in Aboriginal and Torres Strait Islander Peoples 2001 – 2021 (%)	-26.48	-36.8	+120.2	-37.51

Figure 6 – Socioeconomic Profile of Individual Local Government Areas

Natural Landscape of the Region

The Far Northwest region of New South Wales encapsulates a rich tapestry of natural landscapes ranging from semi-arid desert plains to fertile farmlands, rangelands and

wetlands. These landscapes not only define the physical character of the regions but also underpin their ecological, cultural, and economic vitality.

Geographical Overview and Biodiversity

This area includes diverse natural features such as:

- Darling River: Acts as a vital water source and ecosystem supporting a variety of aquatic life.
- National Parks and Conservation Areas: Protects significant biodiversity and offers sanctuary to numerous species.
- Brewarrina Aboriginal Fish Traps: Estimated to be over 40,000 years old, representing one of the oldest human-engineered structures and a critical cultural heritage site.
- Flora and Fauna: The region's flora and fauna have adapted to the arid conditions, showcasing a range of species that thrive in extreme environments. Endemic plants and animals contribute to the area's ecological diversity and resilience.

Ongoing conservation efforts aim to protect and preserve the unique biodiversity of the Far Northwest. These include initiatives to manage invasive species, rehabilitate damaged ecosystems, and ensure sustainable water usage that supports both human and ecological needs.

Agricultural Land Use

Agriculture forms the backbone of the Far Northwest Region economies with land predominantly used for cropping and grazing. Bourke Shire benefits from access to the Darling River, enabling diversification into irrigated agriculture, particularly cotton. Cobar and Walgett focus predominantly on broadacre, dryland farming and livestock grazing reflecting the adaptation to the semi-arid climate. A majority of Brewarrina's agricultural land is used for livestock grazing, with broadacre cropping efforts predominantly focused on cereal crops. The harvesting of feral goats has provided a valuable source of income for graziers, particularly in Cobar and Bourke.

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

Bourke Shire	
Total area of LGA (ha)	4 159 837
Primary Agricultural Activity	Broadacre cropping, Irrigated cotton, sheep grazing and wool production.
Total area of broadacre crops (ha)	16 716
Total gross value agricultural production ($m)	77.7

Brewarrina Shire	
Total area of LGA (ha)	1 916 203
Primary Agricultural Activity	Sheep grazing, wool production, cereal cropping and a small cotton industry.
Total area of broadacre crops (ha)	93 650.3
Total gross value agricultural production ($m)	121.6

Cobar Shire	
Total area of LGA (ha)	4 557 535
Primary Agricultural Activity	Sheep and cattle grazing, broadacre dryland farming.
Total area of broadacre crops (ha)	46 339.3
Total gross value agricultural production ($m)	51.3

Walgett Shire	
Total area of LGA (ha)	2 230 825
Primary Agricultural Activity	Sheep and cattle grazing, broadacre dryland farming, cereal cropping.
Total area of broadacre crops (ha)	451 312.3
Total gross value agricultural production ($m)	465

Figure 7 - Primary Agricultural Activities of each Local Government Area.

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 and 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 Far 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 Far Northwest

Region. The Far 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 Far Northwest Region is under continuous threat from government plans to lower weir walls; perverse outcomes of water policy; inaction; and high costs and slow processes. Community have expressed a frustration caused by inactivity on water management during RDR Plan consultation. Examples include:

- NSW Government Fish Passage: Reconnecting the Northern Basin Project: Plans to upgrade fish passages across the Northern Basin involves lowering and modifying weir walls to enable the construction of a variety of different fishways such as Fish Locks. The project will reduce the storage capacity of weir pools and resultant duration of water availability in subsequent droughts. In the 2018-19 drought, without these weir adaptations, weir pools at Brewarrina and Collarenebri ran dry, and therefore these planned changes will exacerbate the frequency and speed at which the weir pools along the Northern Rivers are emptied.
- 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. Water buybacks have contributed to job losses, people departure and decreased water security in the Barwon-Darling Region and the continued over recovery of environmental water will have negative social, environmental and economic costs.
- Inaction: Cobar receives water via the Albert Priest Channel from the Macquarie 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.

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

Shire	Key Natural Water Resource	Use
Bourke	Darling River	Irrigated agriculture, Agriculture, Town Water supply
Brewarrina	Barwon River	Agriculture, cotton farming, livestock watering, town water supply
Cobar	Bogan River and Macquarie River via Albert Priest Channel	Mining, livestock watering, town water supply
Walgett	Namoi River and Barwon River	Irrigated agriculture, cotton farming, town water supply

Figure 8 – Key Natural Water Resources of each Local Government Area

Regional Weather and Climate Characteristics

The Far Northwest of New South Wales is experiencing significant changes in its weather and climate characteristics, which are expected to have profound impacts on the region's natural landscape, economy, and societal well-being. These changes are being driven by global climate change, manifesting in increased temperatures, altered precipitation patterns, and more extreme weather events.

Far Northwest Regional Weather and Climate Characteristics include:

- Average maximum temperatures during summer ~ 36°C.
- In winter, the average minimum temperature ranges from 4-6°C
- Over 70 hot days are experienced in the north-west of the region around Bourke.
- Majority of the Far Northwest Region experiences fewer than 20 cold nights (<2°C) per year.

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

Period	Characteristic	Impact on Barwon–Darling Valley
1900s to 1940s	Dry Period	Marked by short to decadal droughts, setting a precedent for dry conditions.
1950s to 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 9 - Key Natural Water Resources of each Local Government Area

Society, Population and Demographics

The Far Northwest region of New South Wales embodies a vast and sparsely populated area with a profound Aboriginal heritage. This unique demographic landscape is shaped by its remote and rural character, which significantly influences population distribution, age demographics, workforce participation, and socioeconomic status.

Population Distribution and Trends:

The Far Northwest region is characterised by significant logistical and socio-economic challenges, partly due to the extensive distances between communities and towns. The average travel time of three hours between main towns complicates service delivery, economic development, and community cohesion. This geographical isolation is a critical factor in the complex set of challenges the region faces, including ensuring sustainability and prosperity.

The demographic trends in the Far Northwest region show a concerning trajectory, with an expected population decline of 11% over the next 15 years. Since 2018, there has been a noticeable decrease of 1.8% in the population. This downward trend is compounded by a significant shift within age demographics: a 16% decrease in young people, a 24% decrease

in the working-age population, and a 48% increase in the proportion of the population over 65 years.

Younger generations' attitudes towards agriculture and traditional livelihoods are changing, exacerbated by concerns over work-life balance and climate change uncertainty. There is a trend of seeking more stable and less stressful careers outside the region, leading to a drain of vital human capital. This is reflected in a 13.6% reduction in employment within the agricultural sector from 2001 to 2020 and a shift in primary industry from agriculture to public administration and safety.

Demographic Asset	Detail
Population Trend (2018 – 2033)	Expected decline of 11%.
Population Change (Since 2018)	Decrease of 1.8%.
Age Demographics Change	• Young People: -16% • Working-age Population: -24% • Over 65: +48%
Workforce Participation (Aboriginal Communities)	• Cobar: Higher due to mining jobs. • Brewarrina: Lower, limited to agricultural and administration sectors. • Walgett and Bourke: Primarily in service and labour sectors.
Migration Trends	High outwards migration correlated with drought periods.
Primary Industries Shift	From agriculture to public administration and safety.
Employment in Agriculture (2001 – 2020)	Decrease of 13.6%.

Figure 10 - Population, industry and migration trends across Bourke, Brewarrina, Cobar and Walgett Shire Councils.

	Population of Bourke LGA	Population of Brewarrina LGA	Population of Cobar LGA	Population of Walgett LGA
2001 Census Year	**3899**	**2056**	**4105**	**8279**
2021 Census Year	**2340**	**1356**	**3369**	**1781**
Total population loss	**- 1559**	**- 700**	**- 763**	**- 6498**
Average change per annum	**-77.95**	**-35**	**-36.8**	**324.8**
% loss over 20 years	**40%**	**34%**	**18%**	**78%**

Figure 11– Population declines of the Far Northwest Region 2001-2021.

A key characteristic of the population in the Far Northwest Region is the aging population, placing additional pressure on aged care service delivery, healthcare, and community support structures. The Far 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:

- Bourke continues to undertake positive initiatives to encourage community growth, as demonstrated by the redevelopment in the agricultural sector and continued improvement in the tourism sector. Efforts to improve local infrastructure and the town's amenity are also aimed at increasing the resident population.
- Brewarrina and Walgett have both witnessed fluctuating population trends, largely influenced by employment opportunities in the agricultural and administration sectors. Efforts to diversify the local economy and business life, particularly related to agriculture, the service industries and tourism, aim to stabilise both community's populations.
- Cobar's strong mining sector plays a key role in attracting skilled workers to the area. The Cobar Shire Council recognises the need to improve community services and facilities to attract new residents whilst also strengthening its key mining and agricultural business sectors.

Aboriginal Communities:

The region's significant Aboriginal population is deeply intertwined with the cultural and historical fabric of the area, exemplified by the Brewarrina Aboriginal Fish Traps. Despite the cultural significance of such sites, Aboriginal communities face challenges, including barriers to accessing water rights and issues impacting community cohesion.

Workforce participation rates and employment sectors for the Aboriginal populations within the region reveal disparities and opportunities unique to each community. While Cobar benefits from the mining industry, offering employment opportunities to its Aboriginal population, communities in Brewarrina, Walgett, and Bourke face challenges related to the availability of jobs, particularly those not requiring specialised skills.

Built Form and Infrastructure

Population, industry and migration trends across Bourke, Brewarrina, Cobar and Walgett Shire Councils

Transportation and Connectivity:

The vast Far Northwest region relies heavily on its road network for transportation and connectivity, linking small, remote communities to key centres such as Bourke and Cobar. This network is vital for the movement of goods, access to services, and community interaction. Although primarily served by roads, all centres in the region are also linked by rail-supported bus services, enhancing accessibility.

Public transportation options, while limited, include several air services that bolster connectivity for remote communities:

- Cobar has direct flights to Sydney every weekday.
- Walgett and Bourke have air services to Dubbo three days a week.
- Lightning Ridge is served by flights two days a week.

These services are crucial for reducing travel times and improving access to broader domestic networks. However, the primary challenge remains maintaining and upgrading road infrastructure to ensure safe and efficient travel. Seasonal weather conditions, such as heavy rains and floods, can quickly deteriorate road conditions, leading to closures and access issues. The lack of more extensive public transportation options further exacerbates the isolation of these communities, limiting access to essential services and opportunities.

Enhancing road safety through upgrades and maintenance, alongside improving public transportation infrastructure, such as bus services between towns, could significantly benefit residents, especially those without personal vehicles. This is a key opportunity to support the region's connectivity and overall community well-being.

Water Security:

Water security is a critical issue in the arid Far Northwest region, where access to reliable and clean water sources underpins the health of communities, agriculture, and ecosystems. The region's current water infrastructure, is designed to manage the scarce water resources, and includes:

- **Dams and Weirs**. The region relies on a network of dams and weirs to store and regulate water supply. These structures are crucial for capturing rainfall and runoff, providing water for towns, agriculture, and environmental flows. Major dams like the Menindee Lakes System play a vital role in water storage and management, though they also reflect the challenges of evaporative losses and managing water in times of drought.
- **Water Treatment Plants.** Water treatment facilities are essential for ensuring that water drawn from dams, rivers, and borefields meets health standards for consumption. These plants use various processes to filter and disinfect water, but they require ongoing maintenance and upgrades to handle the demands of changing water quality and new health regulations.
- **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.

- **Pipelines.** A network of pipelines delivers treated water from dams, weirs, and treatment plants to communities. These pipelines are critical for distributing water across the vast distances of the Far Northwest but are subject to issues of aging infrastructure and leakage, which can lead to water loss.
- **Rainwater Harvesting Systems.** In more remote areas, individual properties and some communities rely on rainwater harvesting systems to capture and store rainwater for use. While this method provides a degree of self-sufficiency, it is heavily dependent on rainfall patterns, which can be variable and unpredictable.

However, these systems face increasing pressure from climate variability, population changes, and agricultural demands. The challenges in water security and management are multifaceted, including:

- **Aging Infrastructure.** Much of the water infrastructure, including pipelines and treatment facilities, is aging and requires significant investment to upgrade and maintain.
- **Climate Variability.** The increasing unpredictability of weather patterns and climate change poses challenges to managing water resources, with more frequent and severe droughts and floods.
- **Evaporation Losses.** High temperatures and sunlight contribute to substantial evaporation losses from open water storages, like dams and lakes, reducing the efficiency of water storage.

The variability in rainfall exacerbates these challenges, making water management a complex task that requires careful planning and innovation. There are significant opportunities to improve water security in the Far Northwest, such as:

- **Infrastructure Upgrades**. Investing in modernizing water treatment plants, pipelines, and dams can improve efficiency and resilience to climate impacts. Upgrades can include the introduction of advanced treatment technologies and leak detection systems in pipelines.
- **Sustainable Groundwater Use**. Implementing more sophisticated monitoring and management of borefields can ensure sustainable groundwater use, preventing over-extraction and maintaining water quality.
- **Water Recycling and Reuse**. Expanding water recycling and reuse projects can alleviate pressure on fresh water sources, particularly for agricultural and industrial use.
- **Rainwater Harvesting Innovations**. Encouraging the use of advanced rainwater harvesting and storage solutions can enhance water security for remote and rural properties, making them less dependent on centralized water supplies.

Digital Connectivity:

Digital connectivity is crucial for the Far Northwest's economic development, access to services, and social inclusion. However, the region's remote and sparsely populated nature poses significant challenges to providing reliable and high-speed internet access. Coverage and service quality can be inconsistent, impacting businesses, healthcare, education, and

communication. The vast distances and challenging terrain increase the cost and complexity of infrastructure development for broadband and mobile services.

The digital divide between urban and rural areas remains a significant issue, with some remote communities having limited or no access to reliable digital services. There is a significant opportunity to improve digital connectivity through the expansion of broadband networks, including fixed wireless and satellite services, to reach the most remote areas. Investing in digital literacy and technology education programs can enhance the community's ability to benefit from digital services. Collaborations between government, industry, and communities to fund and deploy digital infrastructure projects can accelerate improvements in connectivity.

Future Investment Projects Shaping the Far Northwest Region

Current planned or ongoing investment projects of note that will have a significant investment and disruptive effect in the Far 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
- Mining: Continued investment into Cobar’s mining sector has resulted in increased mining jobs and spending in the Shire. Participating mining companies directly spent $133 million in Cobar in 2023, supporting over 638 local jobs.[3]
- 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 Far 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.

[3] NSW Minerals Council (2024) https://www.nswmining.com.au/news/2024/2/survey-confirms-increased-mining-jobs-and-spending-in-cobar

- 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 Far Northwest's economic landscape is significantly shaped by the activities within its towns, each contributing uniquely to the region's prosperity. Agriculture, mining, and public administration emerge as common threads, yet the scale and focus of these industries vary, influenced by each town's resources, heritage, and geographical context.

	Bourke LGA	Brewarrina LGA	Cobar LGA	Walgett LGA
Gross Regional Product ($M)	**194**	**70**	**491**	**319**
Value of Agriculture, Forestry and Fishing Economic Output ($M)	77.68	121.64	51.28	464.96
Value of Mining Economic Output	0	0	926 (2021)	0
Number of Jobs in Agriculture, Forestry and Fishing	163	86	184	444
Number of Jobs in Mining	0	0	638 (2023)	0
Total Jobs	2033	915	3537	3708

Figure 12: Gross Regional Product (GRP) and the economy by Shire.

Bourke's economy is deeply rooted in agriculture, with a strong emphasis on cotton, leveraging the town's access to irrigation systems. Livestock farming, particularly goat farming, also plays a crucial role. However, water security remains a persistent challenge, impacting agricultural productivity and sustainability. Public administration is vital in supporting the community's infrastructure and service needs, while tourism, particularly focusing on the town's rich cultural heritage and natural beauty, presents an opportunity for economic diversification. The development of eco-tourism and enhancements in agricultural practices offer pathways to bolster Bourke's economic resilience and growth.

Cobar stands out for its significant mining sector, tapping into the region's rich deposits of copper, gold, lead, and zinc which contributed to an economic output of $926.4 million in 2021. This industry not only drives Cobar's economy but also presents environmental and sustainability challenges that require innovative management and technology solutions. Agriculture, focusing on livestock, particularly goats, complements the mining sector, though it faces its own set of challenges, including workforce retention and sustainable water use. Public administration supports essential services and infrastructure, with opportunities for growth lying in exploring new mineral resources and improving public amenities and services to enhance the quality of life for residents.

Brewarrina and **Walgett** share a focus on agriculture as a primary economic driver with an emphasis on livestock farming and Brewarrina has a small cotton industry, contributing to a GRP of $70 and $319 respectively. Agricultural activity, however, is heavily influenced by the

region's climatic conditions and water availability, underscoring the importance of sustainable water management strategies. Public administration plays a crucial role in both towns, providing essential services and supporting community well-being. Tourism, particularly cultural and heritage tourism, offers a promising avenue for economic development, tapping into the rich Aboriginal heritage and natural landscapes of the area. Strengthening the tourism infrastructure and promoting these unique cultural experiences can attract visitors and stimulate local economies.

The Far Northwest of New South Wales faces three main economic challenges that impede its growth and sustainability. These include:

- Climate variability and water security exert a profound impact on the cornerstone industries of agriculture and mining, leading to increased production costs and reduced operational viability.
- The region's geographical isolation exacerbates transportation and logistics costs, diminishing the competitiveness of local businesses on a broader scale.
- A skilled workforce shortage also presents a critical challenge, particularly in vital sectors such as healthcare, education, and mining, making it difficult for these industries to attract and retain the talent necessary for their advancement and development.

Conversely, the region harbours a wealth of opportunities that, if leveraged, could propel significant economic development. Renewable energy projects, for instance, are a promising avenue, with the Far Norhwest's expansive landscapes and high solar insolation rates making it an ideal candidate for large-scale solar and wind energy initiatives, thereby diversifying, and adding sustainability to the economy.

The potential for tourism is vast, with the area's natural attractions, rich cultural heritage, and unique landscapes offering a solid foundation for sector growth. An investment in technology and innovation across key sectors like agriculture and mining promises to enhance efficiency and productivity while providing access to global markets. Additionally, focusing on infrastructure development, particularly in transportation, water, and digital connectivity, can catalyse economic growth by improving overall connectivity, ensuring water security, and broadening access to essential services.

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 impact of drought in the Far Northwest regions of Bourke, Brewarrina, Cobar, and Walgett, reveals a multifaceted challenge that spans environmental, economic, and social dimensions. 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 13 - Farm in drought conditions in the far north west 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 experience[4]. 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 socio-economic crisis that requires a proactive and informed response from all sectors of society.

The Bureau of Meteorology has four definitions of drought[5], which are meteorological, agricultural, hydrological and socio-economic.

[4] Bureau of Meteorology Drought Knowledge Centre on-line http://www.bom.gov.au/climate/drought/knowledge-centre/

[5] Bureau of Meteorology Drought Knowledge Centre on-line http://www.bom.gov.au/climate/drought/knowledge-centre/

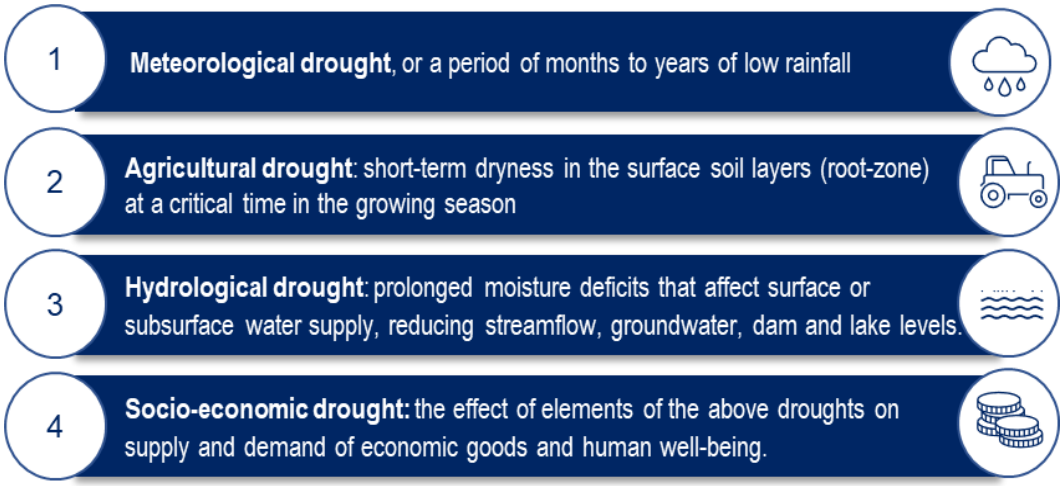


Figure 14 - Bureau of Meteorology Four Definitions of Drought (BoM)

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 developed[6].

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.

[6] 5 Enhanced Drought Information System on-line https://edis.dpi.nsw.gov.au/cdi-drought-phases

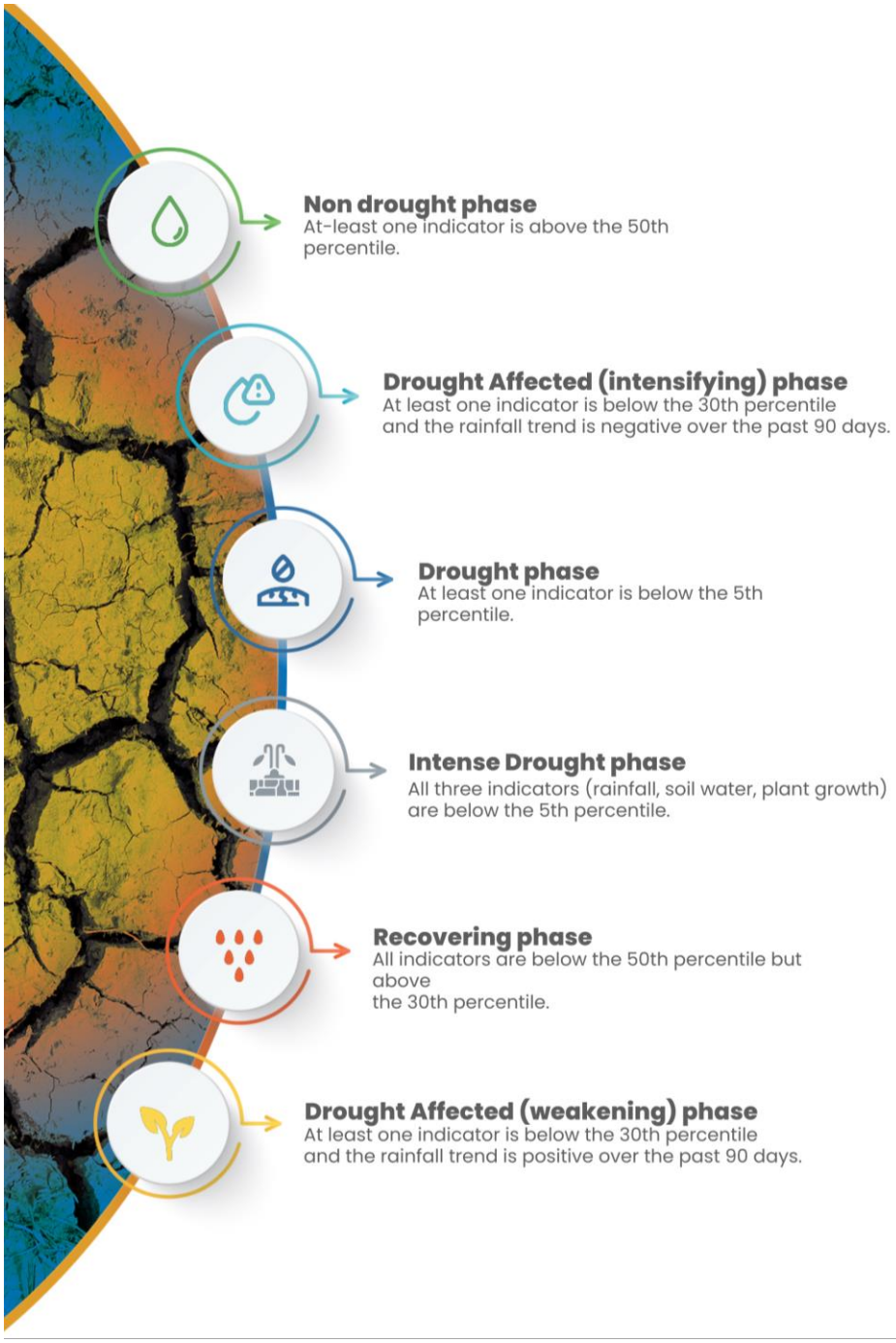


Figure 15 – Stages of drought in NSW adapted from NSW DPI Combined Drought Indicator Drought Stages (Adaptation of source: Enhanced Drought Information System (EDIS))

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 Far 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 (eg 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 Far 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.

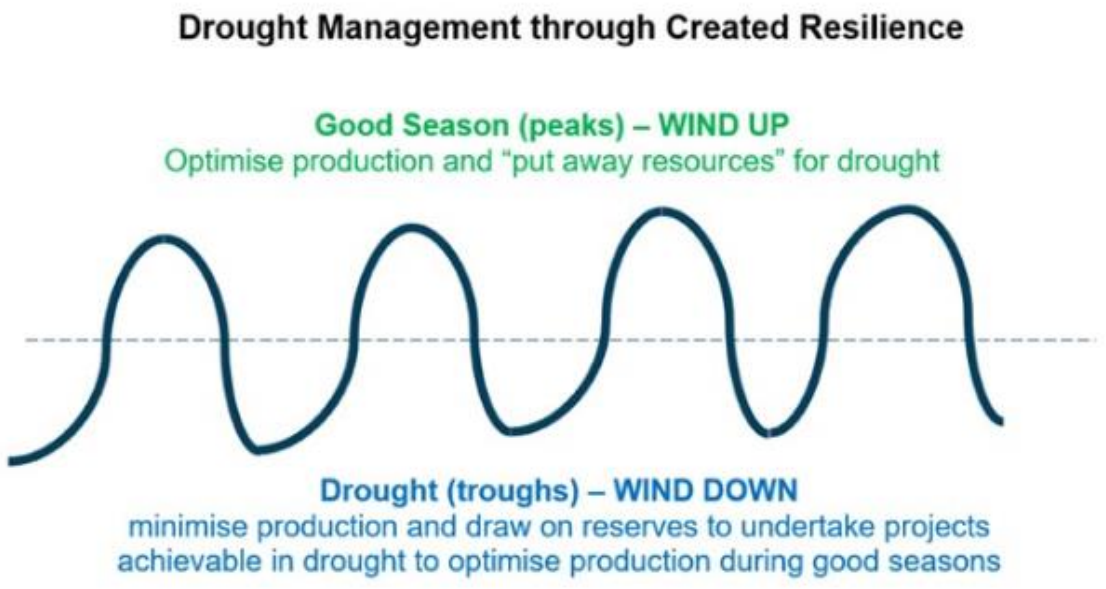


Figure 16 - Drought management through created resilience

Drought Impacts on Regional Communities

The agricultural industry, vital to the Far Northwest, has been deeply affected by drought, with employment levels and the nature of work undergoing significant changes. Over recent decades, a trend towards larger, more mechanised farms has reduced the demand for local labour, exacerbating unemployment in small towns and communities. 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 skill and labour shortage.

The socioeconomic ripple effects of drought extend far beyond the agricultural sector. In Bourke, for example, the contraction of agricultural production led to a substantial loss of seasonal employment, impacting the broader economy. Businesses reported reduced customer spending and a decline in visitors, contributing to a downturn in local economic activity. These flow-on effects emphasise the interconnectedness of agriculture with the wider regional economy and the critical role of employment in maintaining community cohesion and resilience.

Drought Impacts on the Far Northwest Region

During the most recent drought in 2018, the NSW Business Chamber conducted a comprehensive report to assess the impact of drought on businesses across the state, with a focused analysis on the Far Northwest and Orana regions. The findings revealed a stark reality: a staggering 98.3% of the 185 businesses consulted in these areas reported being affected by the drought, either directly or indirectly, a figure significantly higher than the NSW average of 83.7%. The impact varied, with 27% of the businesses, predominantly primary producers, unable to sustain production. Suppliers to these producers accounted for 34.5% of the affected, while a substantial 72.5% experienced the ripple effects due to a weakened local economy resultant from the drought conditions. Among these, 36.3% identified as moderately exposed, whereas a considerable 53.8% felt highly exposed to the drought's impacts.

The economic toll was severe, with 96.5% of businesses witnessing a decrease in sales and revenue, marking an average revenue decline of 36%, the most significant drop observed across any NSW region. The sectors of agriculture, forestry, and fishing bore the brunt of this adversity, recording a 46% reduction in revenue and sales state-wide. Specifically, in the Far Northwest and Orana region, the financial strain manifested as 31.8% of businesses struggled to pay invoices on time, necessitating extended payment periods, and 10.6% found themselves unable to repay suppliers. 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 long-term 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, a whopping 85.5% of businesses were compelled to scale back on capital spending, deviating from earlier plans.

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

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

The future impacts of drought in the Far 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

The region is witnessing a marked rise in both minimum and maximum temperatures. Projections indicate an average increase of approximately 0.7°C by 2030 and 2.1°C by 2070 compared to baseline conditions. This warming trend is expected to result in an increase in the number of hot days annually, with significant implications for human health, water resources, agricultural productivity, and natural ecosystems.

This table outlines temperature projections for future periods:

Period	Increase
Near Future (2020 – 2039)	+0.3°C + 1.0°C
Far Future (2060 – 2079)	+1.8°C to + 2.7°C

Figure 17 - Temperature Projections

A map representation of the mean surface temperature projections for the Far Northwest Region Local Government areas of Bourke, Brewarrina, Cobar and Walgett – 2030 to 2090 follows.

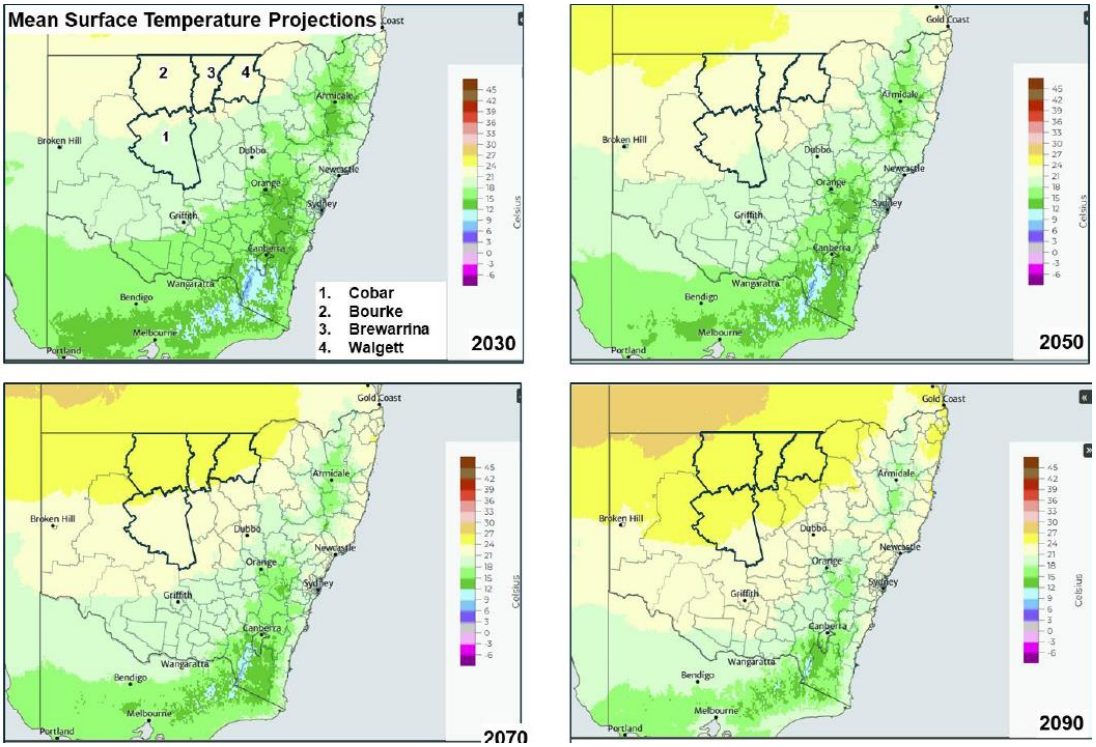


Figure 18- Mean Surface Temperature Projections

Rainfall Projections

Changes in rainfall patterns are anticipated, with a decrease in rainfall during spring and an increase in autumn. This shift could affect water availability, agricultural cycles, and the natural habitats of many species. The variability in rainfall, coupled with increasing temperatures, is likely to exacerbate drought conditions and challenge water management strategies in the region.

This table presents the projections for rainfall and evaporation:

Factor	Projection
Rainfall Decrease	Rainfall is expected to decrease, in dry seasons, by 30%, and increase, in wet seasons, by 17% by 2030. Rainfall is expected to decrease, in dry seasons, by 12%, and increase, in wet seasons, by 27%, by 2070.
Seasonal Shifts	Decrease in Spring rainfall, increase in Summer and Autumn rainfall.

Figure 19 - Projects for rainfall and evaporation

A map representation of the climate science rainfall projections for the Far Northwest Local Government areas of Bourke, Brewarrina, Cobar and Walgett – 2030 to 2090 follows.[7]

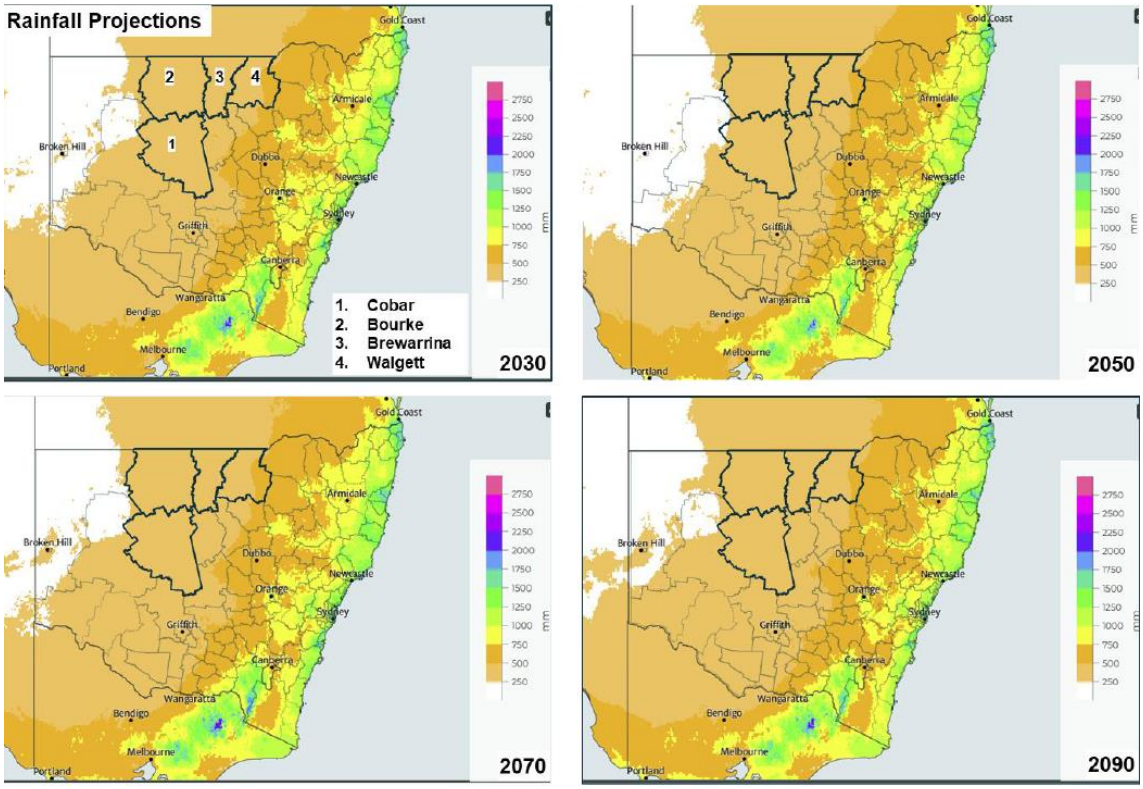


Figure 20 - Rainfall Projections

[7] https://www.climatechangeinaustralia.gov.au/en/projections-tools/

Bushfire Risks and Erosion Concerns

The Far Northwest is expected to see an increase in bushfire risks due to higher temperatures and changing rainfall patterns. Additionally, the region may experience heightened erosion rates, affecting soil health, water quality, and agricultural productivity. These environmental changes call for robust adaptation and mitigation strategies to protect communities, ecosystems, and the economy.

Climate Aspect	Near Future (2020 – 2039)	Far Future (2060 – 2079)
Average Temperature Increase	Approx 0.7°C.	Approx 2.1°C.
Maximum Temperature Increase	0.3 - 1°C	1.8 – 2.7°C
Minimum Temperature Increase	0.4 – 0.8°C	1.4 – 2.7°C
Additional Hot Days Annually	10 – 20	30 – 40
Fewer Cold Nights Annually	5 – 10	10 – 20
Rainfall Change	Decrease in Spring, increase in Summer and Autumn.	
Fire Weather	Increase in the near future and far future, with most profound increases in average and severe fire weather in Spring.	

Figure 21 - Climate change snapshot for near future (2020 - 2039) and far future (2060 - 2079).

Hot Days and Drought Frequency Projections

The table below shows the projections for the frequency of hot days and drought conditions:

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 22- Frequency of hot days and drought conditions

Given the combination of changes in temperature and rainfall the evapotranspiration[8] projections follow.[9]

[8] Evapotranspiration is defined as: 'The combined effect of evaporation and transpiration.' Evaporation is defined as: 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, and Transpiration is defined as 'the process where plants absorb water through their roots and then evaporate water.'

[9] https://www.climatechangeinaustralia.gov.au/en/projections-tools/

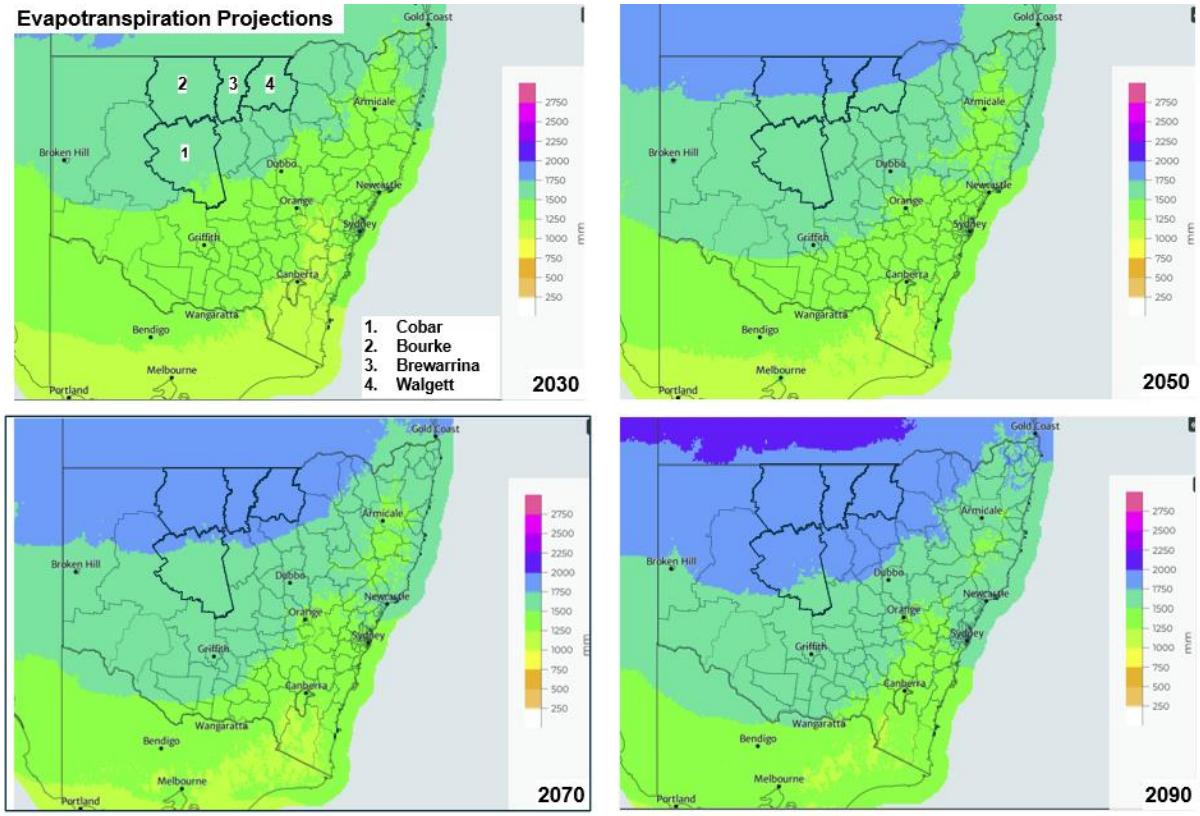


Figure 23- Evapotranspiration Projections

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.

Population Impacts

The population rate in the Far Northwest region has decreased consistently from 2006 to 2021, with the most substantial declines occurring during drought periods (see Graph 1). In the Bourke, Brewarrina, Cobar and Walgett Shires, the current 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 living conditions and employment opportunities elsewhere. 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.

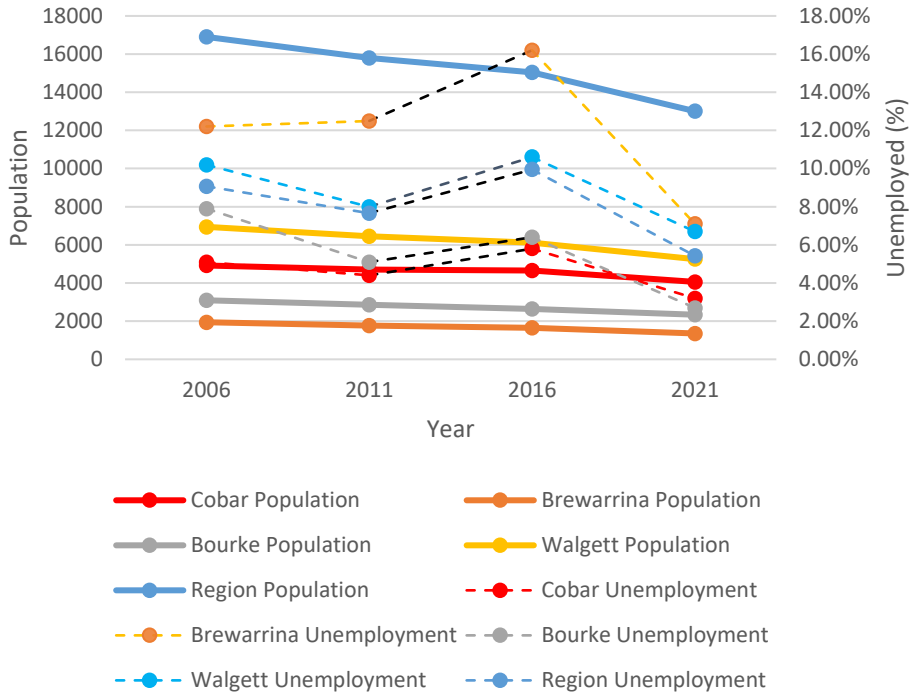


Figure 24– Population and unemployment trends in the region between 2006 - 2021 (ABS).

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:

i. Regional Investment Corporation (RIC) Farm Investment Loan and RIC Drought Loan, make the farm business stronger, more resilient and more profitable.
ii. the 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**

As evident in the Far 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 automation, 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 seen 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 Far Northwest Region adds little to the community and puts extra pressure on the strained resources of the Far Northwest Region, especially when travel to a regional centre to access a service is required.

Once these drought-specific programs conclude, the 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.

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.

A trend which started in the 2017-2020 drought and gained momentum during the Covid-19 Pandemic was the rise in prominence of remote working and small business. Digital connectivity has enabled the people of Far Northwest Region to connect to with education, business and customers like never before.

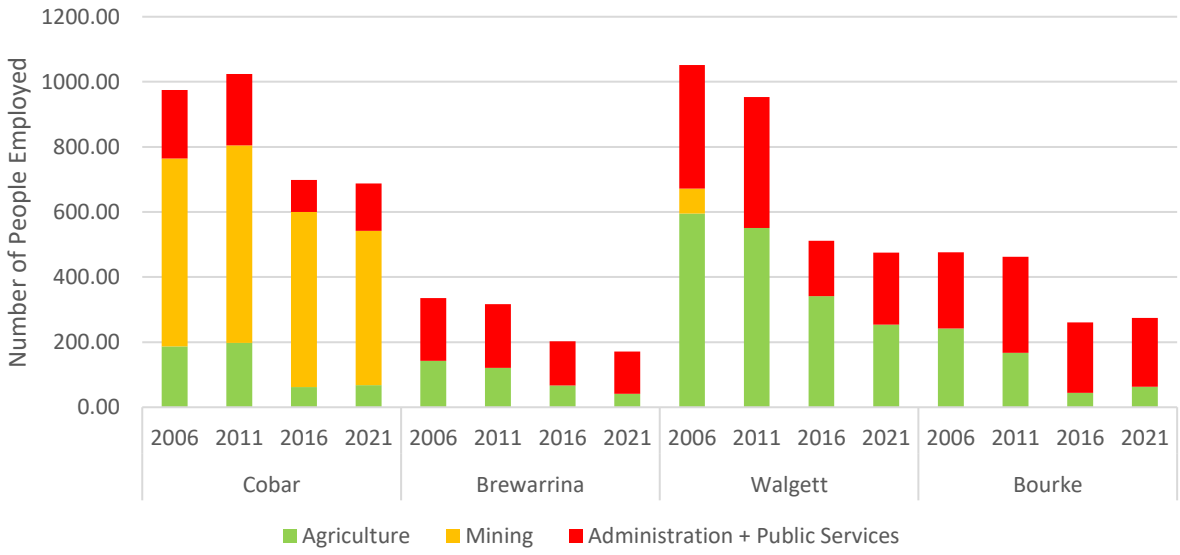


Figure 25– Industry trends from 2006 - 2021 (ABS - Top 5 Industries).

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.

> *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*

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 Far Northwest Region is contingent on access to a larger market.

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 Far 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 was exemplified in the most recent 2017 – 2019 / 2020 drought, where the inability for 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 Bourke, Brewarrina, Cobar, and Walgett. 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 BoM dry 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 Bourke, Brewarrina, Cobar, and Walgett 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 2020 conducted by Royal Far West on rural families in NSW paints 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 affecting half of the respondents, reflects 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 Bourke, Brewarrina, Cobar, and Walgett regions, as evidenced during the 2018-2020 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. The drought's severity, leading to dry rivers and disappearing wetlands, disrupts these cultural practices, severing the connections that these communities have with their land and water.

The distress expressed by community members of the Gamilaraay and Yuwaalaraay 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 Barwon River which hosts the Baiame's Ngunnhu. 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 at the end of the Murray River 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 Far Northwest NSW, 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. 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 comprehensive strategies to mitigate environmental degradation and promote sustainability in Far Northwest NSW.

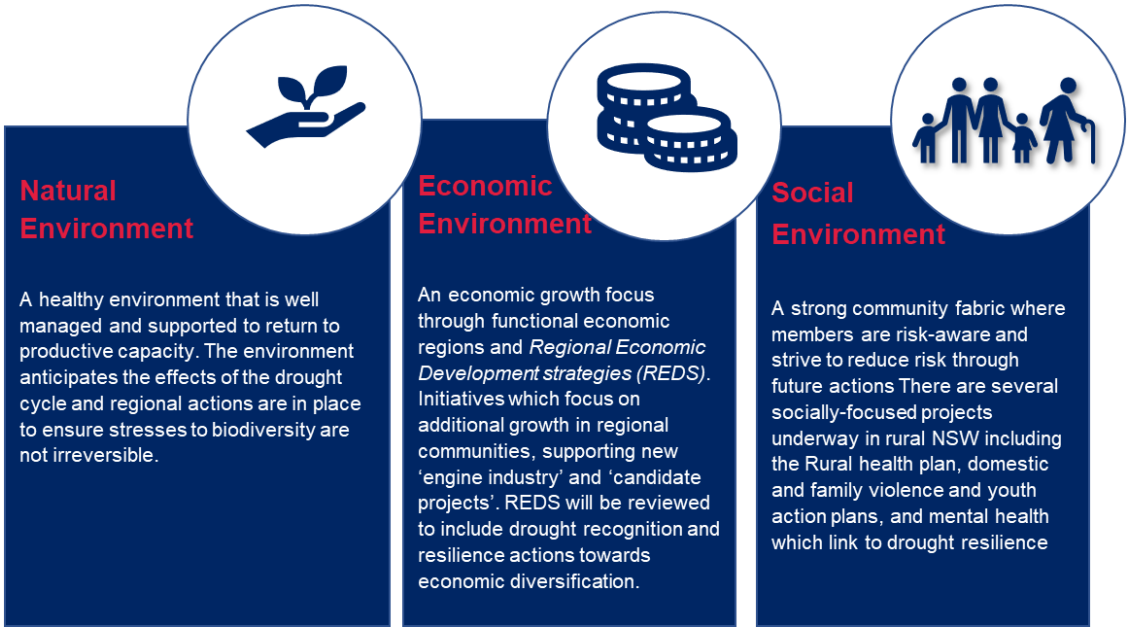


Figure 26 - Viewing Resilience as a System

Our Drought Resilience Journey

The plan recognises the proactivity of farmers and communities in regard to drought preparedness, however, this plan also highlights that further preparedness is required to continue to address current and future impacts of drought, and associated climate trends.

Councils, community members, industry leaders and technical stakeholders have identified strategic initiatives and projects with the corresponding actions for the Far Northwest Region which are required to meet key priorities as well as drought resilience more broadly.

The actions are presented in this Plan are grouped under each of the plans strategic priorities that foster a resilient, innovative and united region

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

They are presented against the Drought Resilience Funding Plan 2020-2024 actions to show the high level of concord with these, as well as the council and community priorities where actions came from co-design and consultation. The order in which the actions are listed does not imply any sort of ranking of importance.

It is understood that some programs relevant to the implementation of the plan already exist. Details of these programs are included in Appendix 3, alongside other ideas captured during the Resilience Assessment and Community Consultation. The programs listed below are the priorities distilled from these processes. Further identification of relevant programs will form part of the implementation plan, ensuring integration and alignment with established initiatives.

Logic Mapping

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.

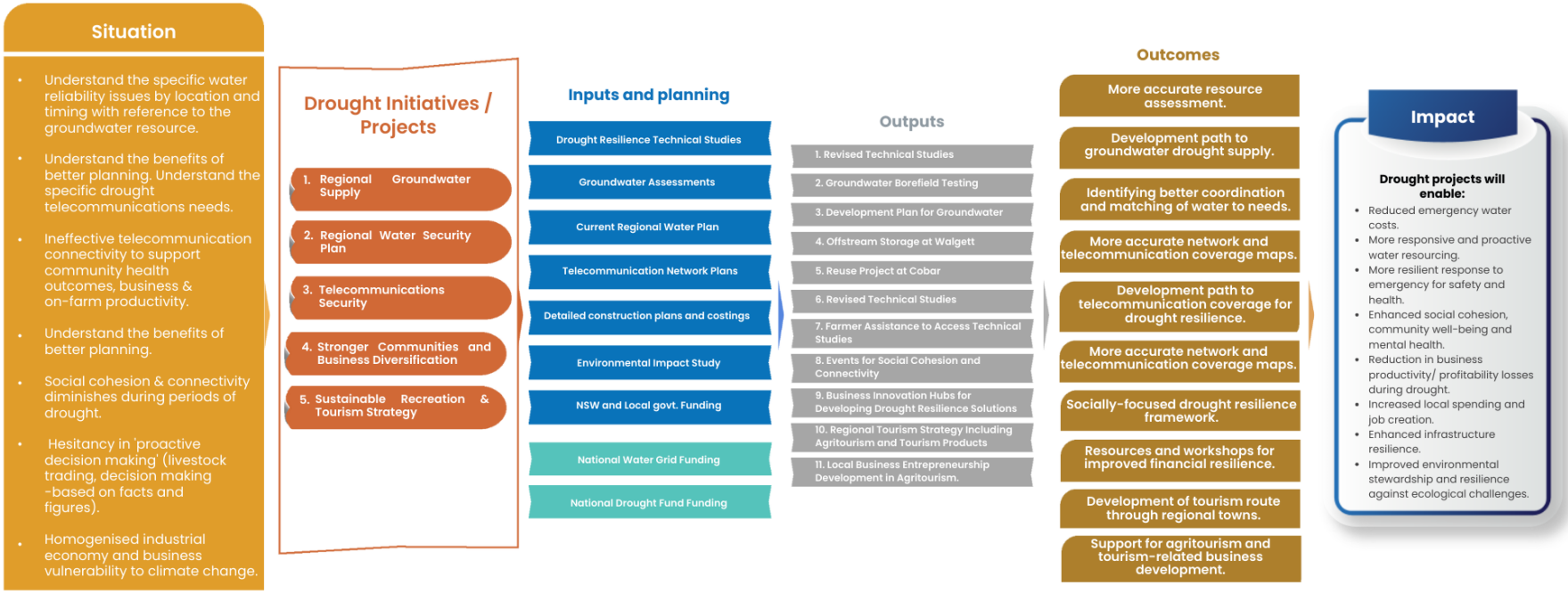


Figure 27 - Drought Resilience Logic Map at a Project Level (The Stable Group, 2024)

Long-Term Water Security Projects

Project Description

The shortlisted projects to improve long-term water security included:

- *Water Security Groundwater – Proving of Groundwater Resources (Quality and Flow) and Installation of Standpipes*

The aim of this project is to improve groundwater quality monitoring through auditing the current bore network, implementing regular sampling programs and collating groundwater quality data from industry and government sources into one database. It also involved investment in technology and research to understand how treated groundwater can support towns, landholders and industries to secure a water supply.

- *Off-Stream Storage at Walgett*

The Namoi Draft Regional Water Strategy included an identification that Walgett township had issues with water reliability. The town relies on in-stream water supply from a weir. In recent years, releases from Keepit Dam for the town supply have had to cease in drought periods, and emergency supply measures put in place. One of these is supplementing the surface supply by groundwater, though that supply has aesthetic water quality issues that have required reverse osmosis treatment to reduce the need for this extra water treatment and other emergency water supply measures when dam releases cease in drought,

- *Water Reuse Project in Cobar Shire Council*

The Regional Water Strategy Macquarie – Castlereagh – Implementation Plan identified the Nyngan Cobar Pipeline as a specific strategy for Cobar. In addition, the Strategy stressed the importance of water conservation and reuse. However, there were no implementation proposals in this area specifically for Cobar, with focus on boosting leakage reduction programs. As a mining town, there's potential for recycling that may not be available to other towns and which could theoretically be implemented cost-effectively.

The feasibility and planning are aimed at addressing the reliability and insufficiency of current water sources in meeting both present and future demands, as well as their vulnerability to drought conditions. This project will provide funding to accelerate feasibility studies and planning for long-term water security projects. These efforts will support growth and enhance drought resilience in the Far Northwest region, ultimately developing a reliable water supply for the community, farmers, and industry.

Scope

1. Conduct feasibility studies to assess the viability, sustainability, and environmental impact of proposed water projects.
    a. Develop a logic structure that expands at the project level, that structure developed for the plan;
    b. Develop a decision tree for each shortlisted project that determines the steps to assess and realise the net benefits of the project proposed; and
    c. Conduct a rapid cost-benefit analysis, inputting cost and benefit data to the NSW Treasury proforma calculated, estimated utilising the previous two tasks.
2. Engage with community and stakeholders to ensure projects meet the local needs and gain necessary support and approvals.
3. Develop funding applications and approvals.
4. Upgrade priority water infrastructure projects.

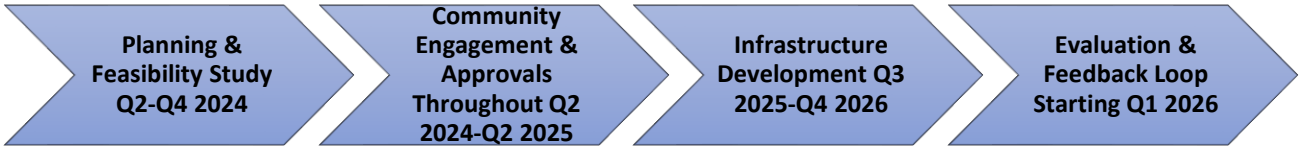
For the shortlisted water security options, five options were deduced for analysis:

- Base Case – Planning without Options – It is assumed for the sake of clarity, that considering a program with up to six projects will incorporate a base level of expenditure on planning.
- Option 1 – Groundwater – Investigation and development of bore fields in the region.
- Option 2 – Off Stream Storage at Walgett – A proposed off stream storage near the Namoi Barwon River Junction.
- Option 3 – Weir Raising – As part of the second option, a benchmarked weir upgrade.
- Option 4 – Off Stream Storage Generic – As part of the second option, an alternative.
- Option 5 – Cobar Water Reuse – A water recycling project in the town with the greatest industrial demand for water in the region.

Actions

Pillar 1 Planning and Monitoring	Pillar 2 Responding to Drought Events	Pillar 3 Building Future Resilience
•Carry out feasibility studies to identify the most effective water security projects, such as new groundwater sources or reservoirs. •Implement monitoring systems for existing water sources to proactively manage water levels and quality.	•Designate and support vulnerable sectors with alternative water supplies and conservation measures during drought. •Activate contingency plans based on monitoring data to mitigate the immediate impact on water availability.	•- Construct resilient water infrastructure projects that ensure long-term availability and quality of water for all sectors. - Launch initiatives that promote sustainable water use and educate the community on water conservation practices to protect this vital resource.

Timeline



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.

Costs

Groundwater

The costing for the groundwater project has been developed using dispersed investment of exploratory and production bore drilling, repeated across a three-phase project at a total cost of $0.6 M. Test drilling and field development will contribute $120,000. Productions is based on three production bores, each with a drilling and lining cost of $15,000, and a pump and piping cost (near to treatment plant) of $35,000.

Water Security

The main report shortlists a number of projects on strategic water planning. To scope how these might be implemented, a range of storage options are evaluated in Options 2 to 5. The costs have been benchmarked from Queensland and NSW Studies.

	Capital Cost per Unit Capacity	Benchmark	Capacity	Cost	Notes
	$/ML	***Location***	***ML***	***$***	
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.
	$/M of wall				
Weir Rehabilitation	$400,000	Darling weirs program	30	$12,000,000	See also Qld weir upgrades of $3m to $11M)

Figure 28 Capital Cost Benchmarks

Benefits

The impact charts illustrate the likely benefits from 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.
- 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.

	Bourke	Brewarrina	Cobar	Walgett
Population	2,340	1,356	4,059	5,253

	Bourke	Brewarrina	Cobar	Walgett
Projected Population [2041]	1,556	931	2,555	3732
Drought Water Consumption (kL pa 2023)	101,739	40,478	176,478	228,391
Drought Water Consumption (kL pa 2041)	67,652	58,957	111,087	162,261
Household Water Consumption (kL per household pa)	597	400	203	300
Potable Water Consumption (kL per household pa)*	100	100	100	100

Figure 29 Population and Water Demand

Source: NSW Department of Planning Population Projects & 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 Far West 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).

Borefields are described as one of the key system assets in delivering Water Security. 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.

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	Net Present Value (NPV)	Benefit Cost Ratio (BCR)	NPV Rank out of 5	BCR Rank out of 5
Base Case: Planning without projects	-$195,238		-	-
Option 1: Water security: Groundwater	$1,258,513	5.131	**2**	**1**
Option 2: Water security: Offstream storage Walgett	$4,671,546	1.811	**1**	**3**
Option 3: Water security: Weir Raising	-$1,367,581	0.884	**5**	**5**
Option 4: Water Security: Offstream storage generic	-$470,114	0.957	**4**	**4**
Option 5: Water security: Cobar Water Reuse	$793,840	2.014	**3**	**2**

Figure 30 Rapid Cost Benefit Analysis Results

Source: Analysis using NSW Treasury Rapid BCA Model

Options 1, 2 and 5 have benefit cost ratios greater than 1 at 5% discount rate, while options 3 and 4 do not.

Sensitivity and Distributional Analysis

The results are sensitive to discount rate in that all options have positive Net Present Values at a lower discount rate (3%), but options 3 and 4 retain a negative Net Present Value at a higher discount rate (7%).

Sensitivity	3% Discount Rate		7% Discount Rate		10% Discount Rate	
Option	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-$197,087		-$193,458		-$190,909	0.000
Option 1	$1,391,675	5.111	$1,142,186	5.146	$993,765	5.158
Option 2	$7,616,135	2.319	$2,596,053	1.452	$500,297	1.087
Option 3	$1,342,659	1.114	-$3,303,646	0.720	-$5,289,190	0.552
Option 4	$2,494,661	1.229	-$2,564,603	0.765	-$4,687,059	0.570
Option 5	$1,115,599	2.227	$566,258	1.815	$335,208	1.554

Figure 31 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	-$234,286		-$156,190		-$195,238		-$195,238	
Option 1	$1,197,579	4.276	$1,319,447	6.413	$1,571,150	6.157	$945,877	4.105
Option 2	$3,520,118	1.510	$5,822,975	2.264	$6,757,284	2.174	$2,585,808	1.449
Option 3	-$3,728,533	0.737	$993,371	1.105	$719,855	1.061	-$3,455,017	0.707
Option 4	-$2,651,066	0.797	$1,710,839	1.196	$1,616,816	1.148	-$2,557,043	0.766
Option 5	$637,196	1.678	$950,484	2.517	$1,109,252	2.416	$478,428	1.611

Figure 32 Sensitivity to Cost and Benefit Variance

If costs fall and benefits rise by 20%, all projects become Net Present Value positive (BCR > 1).

Scenario	Low Case Scenario		High Case Scenario	
Option	NPV	BCR	NPV	BCR
Base Case	-$234,286		-$156,190	
Option 1	$884,943	3.420	$1,632,084	7.696
Option 2	$1,434,380	1.208	$7,908,713	2.717
Option 3	-$5,815,969	0.589	$3,080,808	1.326

Scenario	Low Case Scenario		High Case Scenario	
Option	NPV	BCR	NPV	BCR
Option 4	-$4,737,996	0.638	$3,797,768	1.435
Option 5	$321,784	1.342	$1,265,896	3.020

Figure 33 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%.

Distributional Results

The proposed project principally impacts the following groups:

- *Ratepayers* through costs and avoided costs, and reliability benefits of urban water supply;
- *Farmers and graziers* through the costs and benefits of irrigation and stock and domestic water supply; and
- *Aboriginal Communities* through the potential for improved water supply.

There will also be impacts on commercial and industrial businesses from such things as water recycling, but the numbers of these will be small.

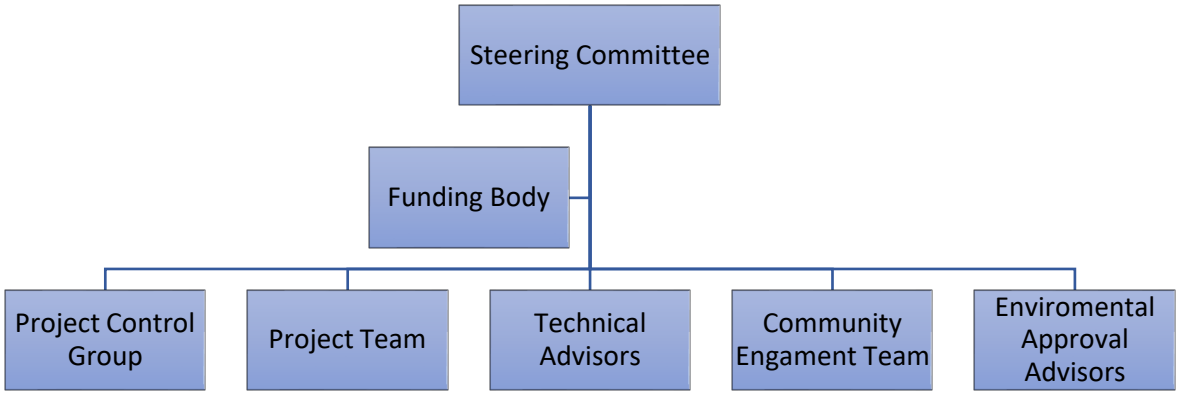
Estimates of impact, separately for benefit and cost, for these groups were made as follows:

Stakeholder	Ratepayers			Farmers and graziers			Aboriginal communities		
Option	Costs	Benefits	NPV	Costs	Benefits	NPV	Costs	Benefits	NPV
Base Case	$195,238	$0	-$195,238	$0	$0	$0	$0	$0	$0
Option 1	$149,973	$485,982	$531,247	$299,945	$923,316	$623,371	$49,991	$153,886	$103,895
Option 2	$4,761,905	$7,300,082	$2,733,416	$595,238	$2,085,738	$1,490,500	$595,238	$1,042,869	$447,631
Option 3	$4,800,000	$6,262,309	$1,657,547	$6,000,000	$3,131,154	-$2,868,846	$1,200,000	$1,043,718	-$156,282
Option 4	$4,440,000	$6,260,789	$2,016,027	$5,550,000	$3,130,394	-$2,419,606	$1,110,000	$1,043,465	-$66,535
Option 5	$782,766	$1,419,354	$831,825	$147,846	$78,853	-$68,993		$78,853	$31,007

Figure 34 Estimates of impact, separately for benefit and cost

Governance Structure

Governance Structure for the project would comprise of the following:



- 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
    - Agriculture NSW
    - NSW Farmers Association
    - Representatives of identified agriculture industries.
- 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.

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. This 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. This inadequacy impacts the success and sustainability of local businesses, tourism and agricultural operations, emphasising the urgent need for upgraded and resilient communication systems. This project involves the measurement of water productivity and water sustainability indices for cotton production systems, identifying potential changes to water use, productivity and sustainability. In late 2023, telecommunication service providers announced the departure of 3G networks across Australia. The current 3G network coverage experienced by the region is depicted in Figure 35, Figure 36 and Figure 37. A result of the planned departure / termination of 3G within the region, many Agtech devices, applications and software utilised will be/are no longer operational. Thus, this project also proposes a grant program to help farmers purchase Agtech devices and applications. Additionally, the shutdown of the 3G network, also increases the network disruption experienced by emergency services, decreasing healthcare access and increase emergency response times.

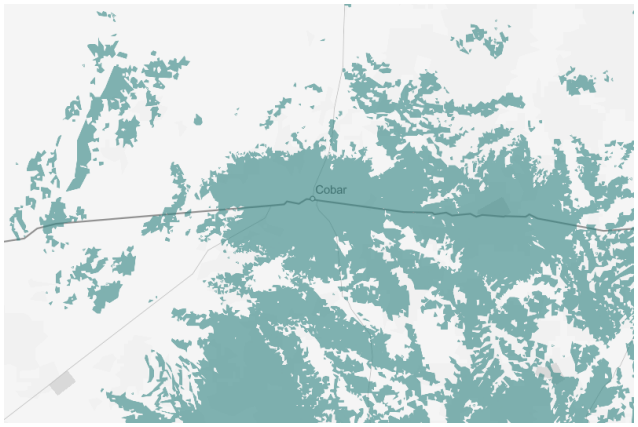


Figure 35: Telstra 3G Network Coverage Cobar Region (prior to termination).

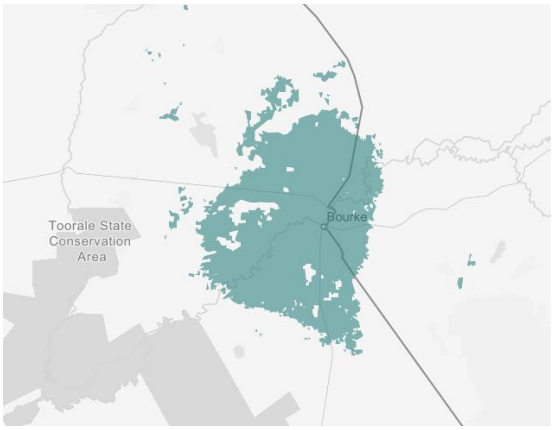


Figure 36: Telstra 3G Network Coverage Bourke Region (prior to termination).

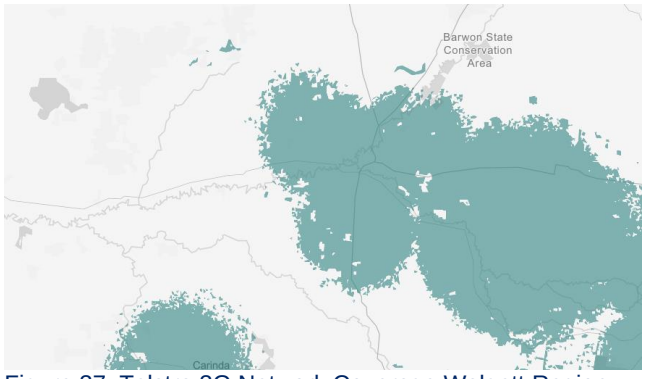


Figure 37: Telstra 3G Network Coverage Walgett Region (prior to termination).

Scope

- Conduct feasibility studies to assess the viability, sustainability, and environmental impact of proposed telecommunications strategy.
    - Develop a logic structure that expands at the project level, that structure developed for the plan;
    - Develop a decision tree for each shortlisted project that determines the steps to assess and realise the net benefits of the project proposed; and
    - Conduct a rapid cost-benefit analysis, inputting cost and benefit data to the NSW Treasury proforma calculated, estimated utilising the previous two tasks.
- Upgrade existing telecommunications infrastructure to extend and enhance 4G and 5G coverage throughout the region.
- Implement new cell towers and enhance existing ones with advanced technology capable of handling increased data traffic and providing reliable connectivity.
- Partner with telecommunications providers to ensure broad coverage and high-quality service.
- Educate the community and local businesses about the new technologies and how to utilise them effectively for their operations.

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

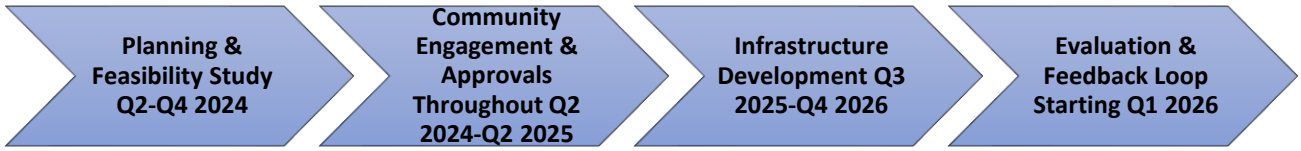
Supporting Broader Resilience

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.
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.

Actions

Pillar 1 Planning and Monitoring	Pillar 2 Responding to Drought Events	Pillar 3 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.

Timeline



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.

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.

Costs

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

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

Table 1: Mobile Phone Coverage Investment

Telecommunications	Cost per town/ community	Location	Number of communities	Total cost
Black spot review	$684,000	Remote Aboriginal communities	19	$13,000,000
Black spot review	$960,000	Outback Australia	43	$41,300,000

In addition, the project would have an optional extension to provide Agtech devices and appropriate support and training.

Item	Unit cost	Source
Water quality and agtech probes	$2,000	Market Price

Benefits

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

- 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.
- Supporting the 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 far-west region;
- Health related benefits for the local community;
- Technological benefits fo the proposed device program being used by farmers to give a more efficient water use.

Many of the benefits are driven by the town, regional or state population.

	Bourke	Brewarrina	Cobar	Walgett
Population	2,340	1,356	4,059	5,253
Projected Population [2041]	1,556	931	2,555	3732

Figure 38: Population

Source: NSW Department of Planning Population Projections and NSW Department of Local Government Water Supply Statistics

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	$56	35-hour week
Value of time saving per annum	$5.59	
Total population Impacted	*21,757*	Population of the region
Impact on state population (hours per person)	0.001	
Value of times savings per annum per person	$0.06	
Total population Impacted	8,144,000	State Population

Figure 39 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.

Results

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

Option	NPV	BCR
Base Case: Planning without projects	-$195,238	
Telecommunications Upgrade	$9,424,809	4.709

Figure 40 Rapid Cost Benefit Analysis Results

Source: Analysis using NSW Treasury Rapid BCA Model

The telecommunications upgrade has a benefit cost ratio greater than 1 at 5% discount rate.

Sensitivity and Distributional Analysis

The telecommunications upgrade is sensitive to discount rate; however, remains positive at both the lower (3%) and higher (7%) discount rates assessed.

Sensitivity	3% Discount Rate		7% Discount Rate		10% Discount Rate	
Option	NPV	BCR	NPV	BCR	NPV	BCR
Base Case	-$197,087		-$193,458		-$190,909	0.000
Telecommunications Upgrade	$12,715,485	6.008	$7,089,257	3.788	$4,707,761	2.850

Figure 41 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	-$234,286		-$156,190		-$195,238		-$195,238	
Telecommunications Upgrade	$8,916,656	3.925	$9,932,961	5.887	$11,817,923	5.651	$7,031,695	3.768

Figure 42 Sensitivity to Cost and Benefit Variance

If costs fall and benefits rise by 20%, the telecommunications strategy remains with a positive Net Present Value (BCR > 1).

Scenario	Low Case Scenario		High Case Scenario	
Option	NPV	BCR	NPV	BCR
Base Case	-$234,286		-$156,190	
Telecommunications Upgrade	$6,523,542	3.140	$12,326,075	7.064

Figure 43 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%.

Distributional Results

The proposed project principally impact the following groups:

- *Ratepayers* through costs and avoided costs, and reliability benefits of urban water supply;
- *Farmers and graziers* through the costs and benefits of irrigation and stock and domestic water supply; and
- *Aboriginal Communities* through the potential for improved water supply.

There will also be impacts on commercial and industrial businesses from such things as water recycling, but the numbers of these will be small.

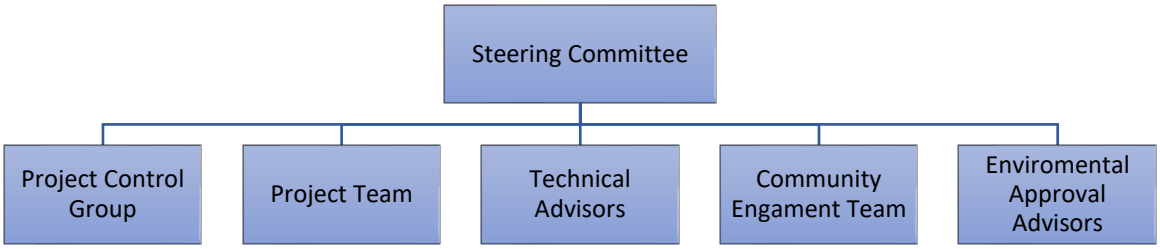
Estimates of impact, separately for benefit and cost, for these groups were made as follows:

Stakeholder	Ratepayers			Farmers and graziers			Aboriginal communities		
Option	Costs	Benefits	NPV	Costs	Benefits	NPV	Costs	Benefits	NPV
Base Case	$195,238	$0	-$195,238	$0	$0	$0	$0	$0	$0
Telecommunications Upgrade	$1,641,600	$3,475,538	$2,029,176	$547,200	$1,223,353	$676,153	$547,200	$802,331	$255,131

Figure 44 Estimates of impact, separately for benefit and cost

Governance Structure

Governance Structure for the project would comprise of the following:



- 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:
  - Federal/State Governments
  - Telecommunications Regulators
  - Mobile Network Operators
  - 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.

Stronger Communities Program

Project Description

The Stronger Communities Program is to improve community cohesion, well-being and financial resilience in the Far Northwest Region. This is achieved 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 challenging periods of drought.

Residents of the Far Northwest region frequently experience increased stress during drought conditions. This situation is worsened by the departure of key services and community members, which puts additional strain on the remaining volunteers and community leaders. There is a noticeable lack of support or awareness of the available aid during these times. 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 effectively.

During previous droughts, various social events were organised with a primary focus on drought-related themes. This approach often limited opportunities for community members to engage and interact without the constant overshadowing of drought conditions. As a result, the proposed events will be 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. 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. These events will be designed to coincide with existing regional events (shows, festivals, etc), and will have some reliance on partnerships with local businesses and services.

Additionally, the sole reliance of farming for a large majority of businesses within the region, increases vulnerability of businesses during drought periods. The incorporation of Rural Financial sessions seeks to address this issue by improving the knowledge, skills and strategies of local

farmers and businesses to better plan for, respond to, and recover from drought events. It will also cover the development and delivery of educational programs, direct business mentoring, and the promotion of innovative practices that enhance drought resilience.

Scope

1. Series of activities and events aimed at promoting social cohesion and connectivity, supported by council-led initiatives.
2. Regular, targeted consultations with key demographic groups, including First Nations people, young families, and the youth, to incorporate their insights into resilience planning.
3. Community sports activities and events designed to counter social isolation and bolster mental health, particularly among young men.
4. Development of a socially-focused drought resilience framework to evaluate the impact of drought and the effectiveness of support programs.
5. Administrative support roles to alleviate the workload on volunteers and community leaders during droughts.
6. Content development for financial resilience sessions e.g. government assistance, debt mediation, risk management, business diversification, etc.
7. Collaborate and engage stakeholders e.g. Department of Agriculture, NSW Farmers Association, Aboriginal groups, education providers, financial services.
8. Expansion of community resources to serve as innovation hubs for developing drought resilience solutions.

Supporting Broader Resilience

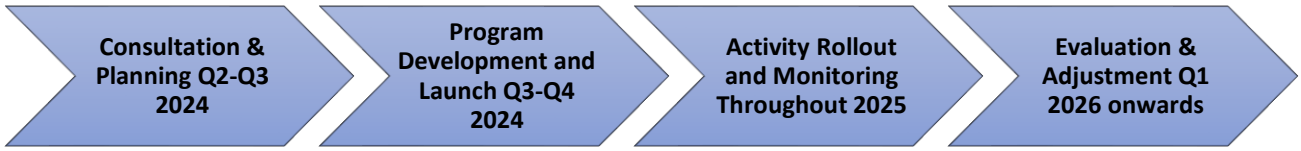
Challenge	Stronger Communities Program Relevance
Social Isolation and Mental Health	Programs aimed at enhancing social cohesion and providing mental health support reduce the strain on community members, improving overall community well-being during drought periods.
Reduced Community Services	Increasing 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.
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

Challenge	Stronger Communities Program Relevance
	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.

Actions

Pillar 1 Planning and Monitoring	Pillar 2 Responding to Drought Events	Pillar 3 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 using facts and figures 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 well-being. •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.

Timeline



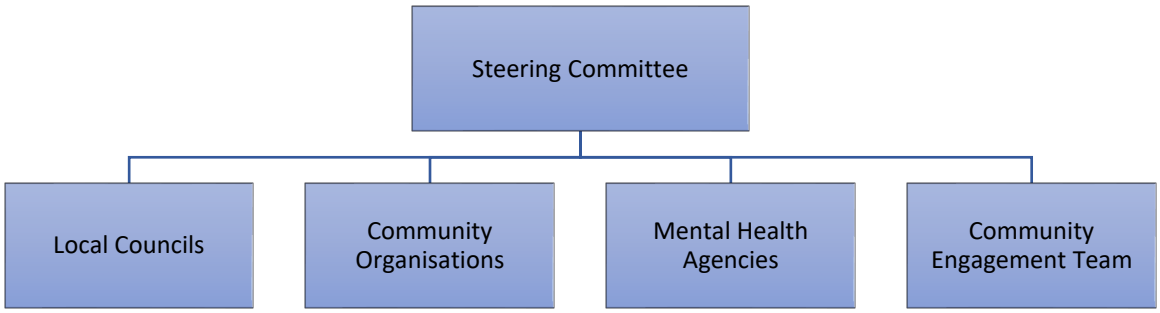
Budget

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

Governance Structure for the project would comprise of the following:



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

Events Schedule

Events should be aligned to existing community events where possible, particularly sporting/cultural events that are already in the calendar.

Western Local Health District – Primary Health Network sponsoring events like these:

Date	Location	Event Title	Event Description	Sponsor
October 13, 2024	Bourke Racecourse	Back of Bourke Rodeo	A fun-filled day with BBQ, sack races, tug-of-war, and face painting.	Bourke Footy Club
October 15, 2024	Bourke Community Hall	Financial Basics for Rural Families	Workshop covering financial literacy, budgeting, and saving strategies for families in rural areas.	Rural Financial Counselling Service NSW

Date	Location	Event Title	Event Description	Sponsor
December 5, 2024	Online	Managing Finances During Drought	Webinar focusing on strategies to manage finances during drought periods, including emergency funds and resource allocation.	Rural Financial Counselling Service NSW
December TBC, 2024	Cobar Christmas Party	All Community Christmas Party	Partner with Council and local organisations to throw a Christmas Street Market and Parade	Cobar Council
January 15, 2025	Walgett Recreation Reserve	Family Picnic Day	A relaxed picnic day with food stalls, live music and kids' activities.	Walgett Shire Council
February 20, 2025	Cobar Swimming Pool	Beach Party (Poolside)	A poolside party with beach-themed decorations, music and snacks.	Cobar Swimming Pool Committee
March 14, 2025	Koori Aboriginal Knockout Footy Comp	Walgett Footy Oval	Family BBQ and Jumping Castle	Primary Health Network (PHN)
March 20, 2025	Bourke Town Hall	Tax Planning and Preparation for Farmers	Workshop on tax planning, preparation, and understanding deductions for the upcoming financial year.	Bourke Shire Council partner with local accounting firm
May 14, 2025	Online	Succession Strategies for Rural Communities	Online workshop discussing the importance of succession planning and effective strategies for rural families.	Pro-Agtive
June 19, 2025	Bre-Big Fish	BBQ Masters Fish Cooking Competition	A cooking competition to go alongside the Bre-Big Fish	Bre Emergency Services
July 11, 2025	Brewarrina Weir Park	Baiame's Ngunnhu Festival	A day of rides, games, food stalls, and entertainment for the whole family.	Brewarrina Rural Emergency Services

Date	Location	Event Title	Event Description	Sponsor
July 14-18, 2025	Cobar, Brewarrina, Bourke, Walgett,	Barefoot Investor on-Tour	Workshops to individuals and families with money management	Local Banks and The Barefoot Investor
August 14, 2025	Bourke Sports Complex	Teen Sports Tournament	A day of competitive sports including soccer, basketball, and volleyball for teens.	Local Schools
September 11, 2025	Walgett Wine Bar	Adults' Wine and Cheese Evening	A sophisticated evening of wine tasting and cheese pairing.	Pub
September 18, 2025	Walgett High School	Money Matters for Kids	Fun and interactive session for kids to learn the basics of money management, saving, and budgeting.	Walgett Shire Schools and TAFE
October 16, 2025	Bourke Community Hall	Effective Tracking of Farm Finances	Workshop on tracking income and expenses, managing cash flow, and financial planning for farms.	Rural Financial Counselling Service NSW
November 20, 2025	Brewarrina Town Hall	Teen Talent Show	A talent show for teenagers to showcase their skills and win prizes.	Brewarrina Youth Centre
December 10, 2025	Online	Depreciation: What Farmers Need to Know	Webinar explaining depreciation, its benefits, and how to apply it to farming equipment and infrastructure.	Rural Financial Counselling Service NSW
December 12, 2024	Cobar Civic Centre	Adults' Comedy Night	A night of laughter with performances by renowned comedians.	Cobar Business Network
January 15, 2026	Walgett, Cobar, Bourke, Brewarrina Swimming Pool	Surf Life Saving Festival	Bring Lifesaving and Water Safety Festival to the local community with prizes	NSW Life Saving and WaterWise and local council
February 19, 2026	Bourke Art Centre	Teen Art Workshop	An art workshop for teenagers to explore their creativity.	Bourke Art Society
March 11, 2026	Brewarrina Pub	Adults' Trivia Night	Another round of engaging trivia for adults with great prizes.	Brewarrina Pub

Date	Location	Event Title	Event Description	Sponsor
March 18, 2026	Online	Grazing for Profit and Budgeting FY2026	Workshop to help farmers prepare for the end of the financial year, focusing on maximizing Returns from livestock enterprises and pasture utilisation and impact on budgeting	Brewarrina Shire Council and KLR Marketing
April 16, 2026	Cobar Sports Ground	Family Sports Day	A day of family-friendly sports activities including races and games.	Cobar Sports Club
May 13, 2026	Online	Investment Strategies for Rural Communities	Online session covering investment options and strategies suitable for rural families and businesses.	Rural Financial Counselling Service NSW
June 17, 2026	Bourke Community Hall	Drag Adults' Bingo Night	A fun bingo night with prizes and refreshments.	Bourke Senior Citizens Club
July 14, 2026	Cobar Civic Centre	Managing Debt and Understanding Credit	Workshop to help individuals manage debt, understand credit scores, and improve financial health.	Local Banks
July 15, 2026	Brewarrina Open Garden Day	Community Gardening Day	A day dedicated to community gardening and health awareness.	Brewarrina Garden Club and Hospital Auxiliary
August 19, 2026	Cobar Skate Park	Teen Skateboarding Competition	A competition for teenagers to showcase their skateboarding skills.	Cobar Youth and Community Centre
September 9, 2026	Walgett Music Hall	Adults' Live Music Night	An evening of live music by local bands and musicians.	Walgett Music Society
September 16, 2026	Walgett High School	Smart Savings for Kids	Interactive workshop teaching kids about the importance of saving and how to set financial goals.	Walgett Shire Schools and TAFE NSW
October 15, 2026	Bourke Community Hall	Budgeting and Cash Flow Management for Farmers	Workshop on creating effective budgets and managing cash flow for agricultural businesses.	Rural Financial Counselling Service NSW

Date	Location	Event Title	Event Description	Sponsor
October 30, 2026	Bourke Community Centre	Family Halloween Party	A spooky and fun Halloween party with costumes, games, and treats.	Bourke Retailers Association
November 18, 2026	Brewarrina Dance Hall	Teen Dance Competition	A dance competition for teenagers with exciting prizes.	Brewarrina Dance Academy
December 9, 2026	Walgett	Grants and Community Loans – a grant writing workshop	1 day grant writing workshop	RIC or RAA
December 10, 2026	Cobar Town Square	Adults' Christmas Market	A festive Christmas market with stalls, food, and holiday music.	Cobar Business Association
February 24, 2027	Bourke High School	Teen Science Fair	A science fair for teenagers to present their projects and innovations.	NSW Education
March 17, 2027	Brewarrina Town Hall	Long-Term Financial Planning for Farmers	Workshop on long-term financial planning, retirement, and succession planning for farms.	Brewarrina Shire Council
May 11, 2027	Online	Using Financial Tools and Apps for Better Management	Online session introducing useful financial tools and apps to help manage finances efficiently.	Rural Financial Counselling Service NSW

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. The strategy will facilitate the creation of recreational infrastructure that can adjust to fluctuating water levels and promote activities suitable for dry seasons. This initiative aims to boost local economies, particularly in areas where recreational access is limited due to variable climate conditions, such as frequent droughts. The development of a tourism strategy inspired by successful models like the Darling River Run, could be tailored for the Three Rivers and Macquarie Marshes regions. 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. The project aims to implement infrastructure for the sustainable management of tourist facilities and explore agri-tourism to diversify economic opportunities.

Scope

1. Development of a tourism strategy similar to the Darling River Run for the Three Rivers and Macquarie Marshes regions.
2. Encouragement and support for local entrepreneurship in tourism-related businesses such as Airbnbs and Farm Stays.
3. Implementation of town planning strategies to enhance town attractiveness for visitors.
4. Support for innovative activities that build community drought resilience.
5. Infrastructure projects for the sustainable management of tourist and recreational facilities.

6. Exploration of agri-tourism and regional tourism product development to diversify economic opportunities.

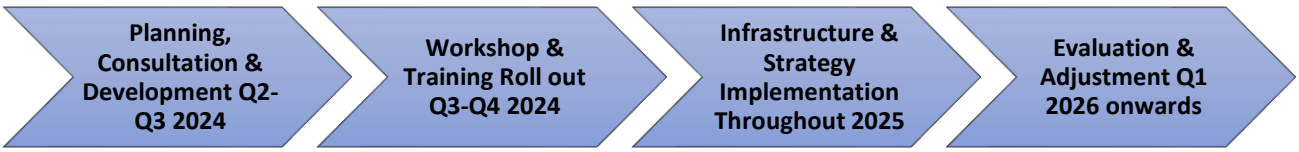
Supporting Broader Resilience

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.

Actions

Pillar 1 Planning and Monitoring	Pillar 2 Responding to Drought Events	Pillar 3 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.

Timeline



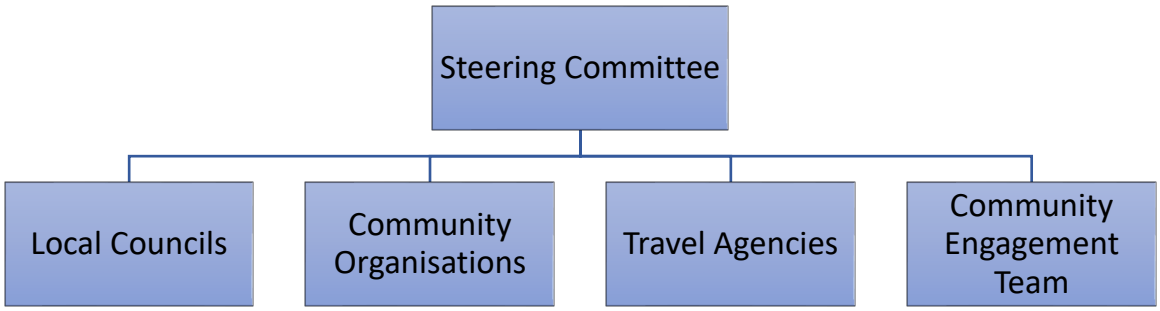
Budget

Preliminary budgets will be determined following the planning phase and are anticipated to encompass strategy development, workshop execution, infrastructure enhancement, and promotional activities.

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

Governance Structure

Governance Structure for the project would comprise of the following:



- 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.

Three Rivers and Macquarie Marshes Run

The Route:

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 Cultural and Community Hub 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 along the Bogan River 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

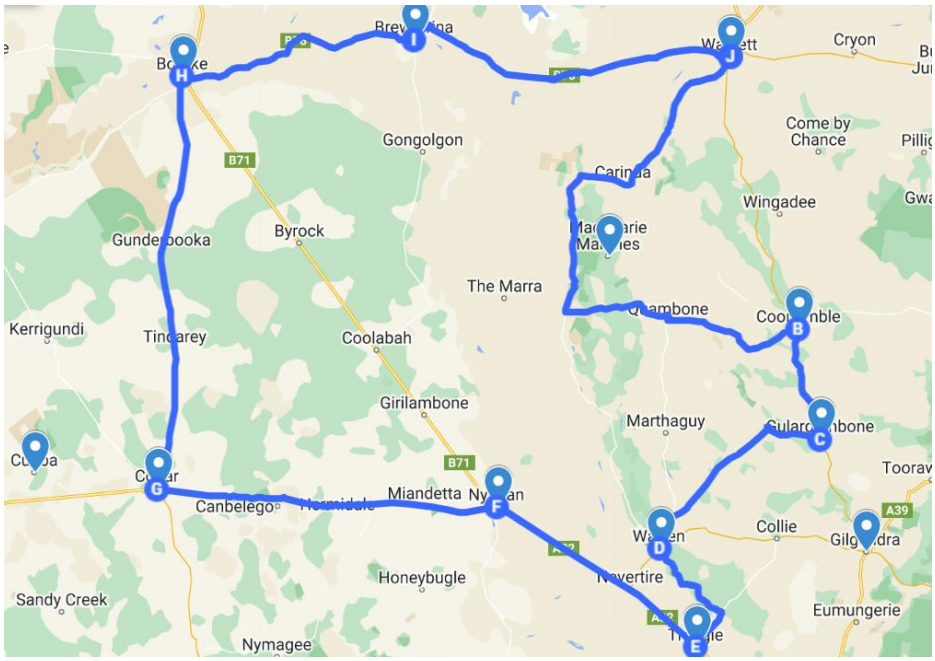


Figure 45 - Three Rivers and Macquarie Marshes Run Route

The Natural Highlights on Route include:

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

Nominal Costs:

Phase 1 – Nominal Capital Costs	**2023-24**	**2024-25**	**2025-26**	**Total**
Nominally:	**Year 0**	**Year 1**	**Year 2**	
Capital Costs				
Project & Operations Manager - Tourism (0.5 FTE of Grade 7 equivalent)	$34,072			$34,072
Webspace (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**

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, AirBnBs, cultural tours, etc.
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 utilised to support investment in water security infrastructure e.g. bores, off-river storage, etc.

Monitoring, Evaluation and Learning

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 Security** **Stronger Communities Program** **Sustainable Recreation & Tourism Strategy** **Rural Financial Program**		
IMPLEMENTATION AND MONITORING FRAMEWORK		
PILLAR 1	**PILLAR 2**	**PILLAR 3**
Planning and Monitoring	**Responding to Drought Events**	**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.		
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.		
Councils can ensure that drought resilience planning is not only integrated into their BAU activities but also supports the region's ability to manage and adapt to drought conditions.		

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.
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).
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).
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).
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 2004). Also see general resilience, specified resilience, economic resilience, environmental resilience and social resilience.

Risk	The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems (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).
Stressor	An event that occurs gradually over a timeframe that causes an adverse effect, e.g., drought (CSIRO, 2022).
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, systems. It includes aspects of people, landscape, culture – how people interact with surroundings and as part of communities and processes.
Resilience	The ability of a system to absorb a disturbance and reorganise so as to maintain the existing functions, structure and feedbacks (Walker et al., 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).
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).
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).
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).

The following terms are adopted from the NSW Regional Water Strategies - Guide:

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.
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.
Evapotranspiration	The combined effect of evaporation and transpiration.
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.
Groundwater	Water located beneath the surface of the ground in the spaces between sediments and in the fractures of rock formations.
Inflows	The amount of water coming into a surface water source or groundwater source.
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.

Surface water	All water that occurs naturally above ground including rivers, lakes, reservoirs, creeks, wetlands, and estuaries.
Transpiration	The process where plants absorb water through their roots and then evaporate water vapour through pores in their leaves.
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.
Water reliability	Refers to how often an outcome is achieved. It is often considered to be the likelihood, in percentage of years, of receiving full water allocations by the end of a water year for a licence category.
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.

The following term is adopted from the CSIRO Drought Resilience Planning, Independent Review Guide:

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.

Appendix 2: Background Context and Key Inputs

The background contexts (BC) 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, include:

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:

- 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.
    - 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.

The background contexts (BC) considered, in developing a regional profile and identifying the impacts of past and future droughts include:

- (BC.1) Barwon-Darling Valley Annual Surface Water Quality Report

- (BC.2) Bourke Shire Council Drought Management Plan
- (BC.3) Bourke Shire Strategy
- (BC.4) Brewarrina Community Development Plan
- (BC.5) Brewarrina Local Environment Plan
- (BC.6) Brewarrina Shire Council Operational Plan
- (BC.7) Brewarrina Shire Economic Development and Tourism Plan
- (BC.8) Brewarrina Strategic Planning Statement
- (BC.9) Draft Far West Regional Plan
- (BC.10) Far West Climate Change Snapshot
- (BC.11) Far West Enabling Regional Adaptation Report
- (BC.12) Far West Regional Economic Development Strategy – 2023 Update
- (BC.13) Far West Regional Plan (2036)
- (BC.14) Louth Floodplain Risk Management Study and Plan
- (BC.15) Northern Connectivity Update
- (BC.16) Revised Community Strategic Plan Brewarrina Shire 2026
- (BC.17) Walgett Community Drought Documents
- (BC.18) Water and Drought Security Report
- (BC.19) Water Management Plan Chapter 3.7 – Barwon-Darling River
- (BC.20) Western Regional Water Strategy

The background contexts (BC) 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, include:

- (BC.21) Australian Government Drought Response Plan
- (BC.22) Baselining Drought – Developing a Baseline Understanding of Farmer and Community Perceptions of Drought
- (BC.23) Building Climate Resilience Through Nature Based Solutions in Europe
- (BC.24) Climate Change in the North-West and Local Land Services Region
- (BC.25) Coordinated Strategic Plan to Advance Desalination for Enhanced Water Security
- (BC.26) Draft Inquiry Report – Government Drought Support
- (BC.27) Enhanced Aquifer Recharge of Stormwater in the United States: State of the Review Science
- (BC.28) EU Strategy on Adaptation to Climate Change
- (BC.29) Far West Enabling Regional Adaptation Report
- (BC.30) Final Report – Support for Drought Affected Communities in NSW
- (BC.31) Interim Report – Support for Drought Affected Communities in NSW
- (BC.32) Macquarie – Castlereagh Regional Water Strategy
- (BC.33) Managing and Preparing for Drought
- (BC.34) Regional Strengths and Infrastructure Gaps Regional Analysis: NSW
- (BC.35) Regional Water Strategy: Western Implementation Plan

- (BC.36) Resilience Strategies for Drought
- (BC.37) Social and Economic Impacts of Drought on Farm Families and Rural Communities
- (BC.38) Strengthening Agricultural Resilience in the Face of Multiple Risks – Resilience to Drought in Australia
- (BC.39) The Role of Conservation Programs in Drought Resilience
- (BC.40) Water Efficiency and Infrastructure Technical Brief

Appendix 3 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' (004)
All												
1	**Government Job Tenure**	Government jobs to be contracted to for min 5 years to provide income security for communities. (People are not "job shopping" and have a commitment to put roots in a community i.e buy a house, become a member of a sporting organisation.)	Economy				Not Applicable	Long Term - Government Policy	NSW and Federal Governments. Councils.	**No**	**Actions required**: 1. Initiate discussions with NSW State Government and Commonwealth Departments. **Supporting Drought Resilience Technical Studies**: Nil	1
2	**Drought Resilience Officers**	Paid advocates / Representative (part time or full time) in the community to idnetify and access services grants focussed on Drought Resilience and Community building activities	Economic, Social,	To be identified	**Economic** - Initiative would contribute to an off-farm income stream for a person. **Social** - Increased commmunity cohesion. **Environmental** - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3)	Not identified	12 Months	NSW Government Council(s)	**To be determined**	**Actions required**: 1. Initiate discussions with NSW State Government. 2. Council(s) / Regional Organisation development a position description and fund. **Supporting Drought Resilience Technical Studies**: Nil	1
3	**Tax Incentives / Economic Zone**	Tax incentives / economic zone: 1.A exemptions, incentives to work / live / create businesses in regions that address inadequate infrastructure available in other regions eg – communications, access to energy or alternate energies, access to water 2. re-instate / encourage increase of population – reward those that decide to stay	Economy				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	3

4	**Water Security Plan**	Develop a regional water security, (including infrastructure) plan for the Walgett, Brewarrina, Bourke and Cobar Shires (To incorporate river and bore water options, and include town, village, stock, industrial, irrigation and domestic usage) (To allow for a strategy / plan to access water for dust suppression and road maintenance to reduce financial burded on Local Government). Note: Bore options, included below at Serial 5.a. (Also conside the plan would need to include a description of the extant water supply systems, secure yield study 5/10/10 rule) actions to be taken during each drought response level, actions that should be taken in preardness for future drought periods).	Economic, Social, 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)	Australian Government national Water Grid NSW Regional Growth Fund	Obtain funding to conduct the studies and develop the plan, 6 months. Drought Resilience Technical Studies 6 months Development and finalisation of plan 3 - 6 months	Australian Government national Water Grid NSW Regional Growth Fund Murray River Basin Authority	**Yes**	**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.	5
5	**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	Economic, 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	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3)	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 and local use.	5

		town water supplies of local towns.			on the natural environment.						2. Prove (drill and assess) bores (quality and flow) in an agreed number of locations (e.g. five). 3. Community consultation.	
6	**Stronger communities program**	Series of activities of events to promote "support groups" for social cohesion and connectness that Councils support /initiate during periods of droughts Note: If staff required to support - then they are paid for by the Council (reduce load on 'volunteers' 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 commmunity cohesion, reduced demand for mental health services. **Environmental** - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3)	NSW Regional Growth Fund	2 - 3 Months	Regional NSW	**To be determined**	**Actions required**: 1. In conjuction 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.	7

7	**Business education workshops – financial management**	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)	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. Advertsie program and call for participants. 4. Deliver the program.	8
8	**Telecommunications Security**	Improve telecommunications connectivity (4G and 5G) in the region to support business and agricutlural 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)			NSW and Federal Governments. Councils.	**Yes**	**Actions required**: 1. Initiate discussions with NSW State Government and Commonwealth Departments. **Supporting Drought Resilience Technical Studies**: Nil	11

9	**Water Security Strategy - Barwon / Darling**	Development water security strategy to ensure sustainable water management and availability in the Barwon-Darling catchment area.	Economic, Social, 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)	Australian Government national Water Grid NSW Regional Growth Fund	Obtain funding to conduct the studies and develop the plan, 6 months. Drought Resilience Technical Studies, 6 months Development and finalisation of plan 3 - 6 months	Australian Government national Water Grid NSW Regional Growth Fund Murray River Basin Authority	**Yes**	**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.	NA

10	**Additional Consultation and 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 commmunity cohesion	Planning and Monitoring (Pillar 1)	NSW Regional Growth Fund	2 - 3 Months	Council(s) First Nations Youth Young Families	**To be determined**	**Actions required:** 1. In conjuction with Community develop a consultation schedule. 2. Develop a plan for the conduct of each consultation. 3. Deliver the engagment log of the consultation. **Supporting Drought Resilience Technical Studies: Nil.**	NA

11	**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 commmunity cohesion	Build future resilience (Pillar 3)	NSW Regional Growth Fund	2 Months	Community members Local sports clubs Mental health organisations	**To be determined**	**Actions required:** 1. In conjuction 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.**	NA
Bourke												

1	**Additional Water Supply for Bourke**	Improve Capacity for Bourke	Economic, 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)	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
Cobar											

1	**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)	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
2	**Water Security**	Increase the storage of the Burrendong Dam by an additional 20%	Economic, 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	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3)	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.	26

					usage on the natural environment.						2. Community consultation.	
3	**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)	$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

Appendix 4: Stakeholder Engagement Plan & Community Consultation Report

The Stable.

Regional Drought Resilience Program (RDRP004) Community and Council Consultation Feedback:

Brewarrina Shire Council, Bourke Shire Council, Cobar Shire Council, Walgett Shire Council

23rd of April, 2024

WWW.THESTABLE.GROUP
ABN 87 651 027 931 | 98 Macquarie Street Dubbo NSW 2830 | +61 468 800 625

The Stable.

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	
Version	1
Version Release Date	23/04/2024
Document Security	Confidential and copyright to The Three Stables Pty Ltd

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2				

Document Information

This document provides a detailed summary of the feedback obtained across consultation periods with community groups and the Councils, within the Brewarrina, Bourke, Cobar and Walgett Shires.

2. TABLE OF CONTENTS

3. 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 Brewarrina, Bourke, Cobar and Walgett Shires as part of the Regional Drought Resilience Plan (RDRP) was comprehensive, engaging a broad spectrum of the community including local government councils (Brewarrina Shire Council, Bourke Shire Council, Cobar Shire Council and Walgett 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 the consultations in Bourke, Brewarrina, Cobar, and Walgett included water security, with discussions around the impact of weir modifications on water storage and advocacy for differentiated treatment of the Northern River systems compared to others like the Hume. Economic development was emphasized with initiatives to attract and retain residents through tax incentives and financial supports like the RIC Farm Investment Loan and Drought Loan, and a DroughtKeeper program to support those losing income due to drought. Community and social cohesion saw suggestions for increased access to clinical psychiatric support and improving digital connectivity for remote areas.

Community and council feedback underscored the challenges of persistent aridity and the exacerbation of these conditions by drought, affecting the economic and social fabric of the region. Water security was notably precarious, with concerns about reduced water storage capacity due to planned weir modifications potentially leading to significant water scarcity as seen during the 2018-2019 drought at Brewarrina and Collarenebri.

Feedback from councils highlighted varying priorities across the region: Brewarrina expressed a critical need to maintain water security and is pursuing research into the socio-economic impacts of water buybacks. Cobar emphasised the importance of infrastructure support for economic and environmental sustainability, while Walgett pointed to the significant need for community projects like road works and infrastructure developments, which could employ local workers during drought periods.

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.

4. 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.

5. INITIAL CONSULTATION – COMMUNITY GROUPS

Consultation Workshops

Town	Male	Female	Under 40	TOTAL
Cobar	8	7	3	15
Euabalong	4	0	1	4
Bourke	6	6	3	12
Louth	6	3	2	9
Brewarrina	7	8	1	15
Hebel	1	4	0	5
Lightning Ridge	4	6	1	10
Walgett	6	6	1	12
Collarenebri	3	2	0	5
Come-By-Chance	1	4	0	5
	46	46		92

In small communities, residents wear many hats to ensure community cohesiveness and activity. This is reflected in the diversity of business interests and community group representation present at the 10 community consultation gatherings across RDRP004 area that included; Local Shire Councillors, NSW Framers Local Councillors, ICPA Members and Life Members , 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 ginners, Tourism operators, Educators, Environmental Groups (Bush Heritage / Narran Wet Lands), Local Lands Services, BDBA, Western Lands Trustees and NSW Crown Reserve Trustees, Sustainable Agriculture and Water Management groups, past Drought Resilience workers, NSW Office of Regional Youth, junior and senior sporting clubs.

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, 4 written submissions and 3 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.

Consultation with the **Bourke, Brewarrina, Cobar and Walgett Shires** took place across multiple destinations and towns from 9th – 19th of February. Some of the key discussion topics included:

Discussion Topic	Information and Details
Paid Advocates in the Community to	Extension/ commitment to Rural Financial Counselling services or Drought Resilience Officers is crucial.

Access Services – Long Term	Pathways for support services must reflect local needs and knowledge, contrasting with the less effective centralised services. Long-term contracts are necessary to foster behavioural changes and stability within communities. Government roles should be designed for a minimum of 5 years to provide income security and encourage community integration.
Value, Reward and Acknowledge our Volunteers (Short to Mid-Term)	Funding for OH&S and RSA's, workshops to make volunteering easier and safer. Workshops for volunteer renewal and succession planning, adapting values from the past to the present.
Activities to Increase Investment Confidence in Rural and Remote Areas (Long-Term)	Economic zones with DA exemptions, and incentives for living, working, or starting businesses in regions with inadequate infrastructure. Tax concessions and financial benefits to encourage people to settle and contribute long-term, not just for transient work.
Awareness Campaign (Long-Term)	Awareness campaign between those that live in populated areas and those from rural and remote areas. Educate the public on the realities of rural life, highlighting the challenges posed by drought and counteract ignorance that can lead to frustration and mental health challenges. Promote a positive image of regional and remote Australia, educating children and encouraging visits to the bush.
Develop a Water Security Plan (Long-Term)	Develop a water security plan for Walgett, Brewarrina, Bourke and Cobar Shires. Strategies encompassing river and bore water options, considering town and agricultural needs, and tackling issues like dust suppression and road maintenance during drought.
Mental Health Awareness in the Bush (Short to Mid-Term)	Leverage existing networks to enhance mental health awareness and provide essential mental health resources and training, especially in remote areas without full-time mental health services.
Community Gatherings (Short-Term)	Continue the support groups and events that occurred during the drought to maintain networks and address isolation, but without overburdening volunteers.
Business Education / Workshops (Short to Mid-Term)	Continue practical, on-farm workshops and provide mentoring for proactive decision-making in business and mental health, including understanding markets and financial decision-making.
Telecommunications Review (Mid-Term)	Collect data on the impacts of inadequate communication on mental health, safety, and productivity. Assess the potential benefits of new solutions like "Starlink" in improving connectivity.
Local Economy Stimulation (Short – Term)	Stimulate local economies and increase main street shop front activity. Develop 'Community Hubs' and support small business succession planning to rejuvenate local economies and promote community benefits.

Councils to Review LEP's to Encourage Industry and Development (Mid Term)	Review provisions to make it easier for additional lifestyle blocks and on-farm worker accommodations, acknowledging the resource constraints of some councils.
Assistance with Education Expenses to "Grow Our Own Program" (Long Term)	Incentivise local youth to develop skills and bring them back to the bush, creating a sustainable and locally knowledgeable workforce.

6. LONG LIST OF PROJECTS DEVELOPED

Based on the initial consultation with communities, a long list of projects was developed.

#	Initiative / Project Name	Description	LGA Key Outcome Area	Program Strategic Alignment	Drought Resilience Benefit	Drought Resilience Pillar	Funding Source Availability	Implementation Timeframe	Key Stakeholders	Short list?	Drought Technical Studies Required
1	**Government Job Tenure**	Government jobs to be contracted to for min 5 years to provide income security for communities. (People are not "job shopping" and have a commitment to put roots in a community i.e buy a house, become a member of a sporting organisation.)	Economy				Not Applicable	Long Term - Government Policy	NSW and Federal Governments. Councils.	**No**	**Actions required**: 1. Initiate discussions with NSW State Government and Commonwealth Departments. **Supporting Drought Resilience Technical Studies**: Nil
2	**Drought Resilience Officers**	Paid advocates / Representative (part time or full time) in the community to identify and access services grants focussed on Drought Resilience and Community building activities	Economic, Social,	To be identified	**Economic** - Initiative would contribute to an off-farm income stream for a person. **Social** - Increased community cohesion. **Environmental** - Not directly identified.	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3)	Not identified	12 Months	NSW Government Council (s)	**TBD**	**Actions required**: 1. Initiate discussions with NSW State Government. 2. Council(s) / Regional Organisation development a position description and fund. **Supporting Drought Resilience Technical Studies**: Nil
3	**Tax Incentives / Economic Zone**	Tax incentives / economic zone: 1.A exemptions, incentives to work / live / create businesses	Economy				Not Applicable		Australian Government	**No**	**Actions required**: 1. Initiate discussions with NSW State Government and Commonwealth Departments.

		in regions that address inadequate infrastructure available in other regions eg – communications, access to energy or alternate energies, access to water 2. re-instate / encourage increase of population – reward those that decide to stay							NSW Government		**Supporting Drought Resilience Technical Studies**: Nil
4	**Water Security Plan**	Develop a regional water security, (including infrastructure) plan for the Walgett, Brewarrina, Bourke and Cobar Shires (To incorporate river and bore water options, and include town, village, stock, industrial, irrigation and domestic usage) (To allow for a strategy / plan to access water for dust suppression and road maintenance to reduce financial burded on Local Government).	Economic, Social, 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)	Australian Government national Water Grid NSW Regional Growth Fund	Obtain funding to conduct the studies and develop the plan, 6 months. Drought Resilience Technical Studies 6 months Development and finalisati	Australian Government national Water Grid NSW Regional Growth Fund Murray River Basin Authority	**Yes**	**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

		Note: Bore options, included below at Serial 5.a. (Also consider the plan would need to include a description of the extant water supply systems, secure yield study 5/10/10 rule) actions to be taken during each drought response level, actions that should be taken in preparedness for future drought periods).						on of plan 3 - 6 months			facilitate concept for the plan, prior to detailed development.
5	**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	Econo mic, Environ mental	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	Respond to Drought events (Pillar 2) Build future resilience (Pillar 3)	NSW Future Drought Fund (for technical studies) Australia n Governm ent national Water Grid NSW Regional Growth Fund	Pre-Construc tion - 16 months Construc tion 6 months	NSW DPE - Water Agricult ure NSW NSW Farmer s associa tion Identifi ed Agricult ure	**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 and local use. 2. Prove (drill and assess) bores (quality and flow) in an agreed

		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.			the impact of bores on the natural environment.				Industries		number of locations (e.g. five). 3. Community consultation.
6	**Stronger communities program**	Series of activities of events to promote "support groups" for social cohesion and connectedness that Councils support /initiate during periods of droughts Note: If staff required to support - then they are paid for by the Council (reduce load on 'volunteers' 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)	NSW Regional Growth Fund	2 - 3 Months	Regional NSW	**TBD**	**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.
7	**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)	NSW Department of Agriculture, Fisheries and Forestry	Immediate	Regional NSW NSW Rural Financial Counselling service	**TBD**	**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.
8	**Communications Security**	Improve connectivity in the region to support business and agricultural productivity	Economy						NSW and Federal Governments. Councils.	**TBD**	**Actions required**: 1. Initiate discussions with NSW State Government and Commonwealth Departments. **Supporting Drought Resilience Technical Studies**: Nil

7. 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 - **Weirs**	*Weirs* Unregulated water system downstream from Walgett is a critical concern – is there a potential for dam construction? State Government has initiated a project 'Fish passage: Reconnecting the Northern Basin project' which involves the lowering of weir walls in order to enable the construction of fish passages e.g. Fish Locks. Phase 1 will include the modification to the Banarway Weir, Calmundi Weir and Louth Downstream Weir. The impact of dropping the weir wall heights, or removing the suggested 22 weirs across the region, will have critical implications on water security as the storage capacity of dams along the river passage will be significantly reduced. At the end of the 2018-19 drought alone (with current weir structure), there was no water in weir pool at Brewarrina and weir pool at Collarenebri. **Project Suggestion: Advocacy piece for the regions – perception that currently the 'scientists' and 'bureaucracy' do not differentiate the problems associated with the Hume fishway and the Northern River system. Because it worked in the Hume river does not mean it will work in the Northern Rivers.**
Water Security - **Buybacks**	*Water Buybacks* A report was produced in 2010 by Judith Stubbs – '*Social and Economic Impacts of Reduced Irrigation Water*' – that assigned monetary values to the costs associated with the social, environmental and economic impacts, job losses and people departure as a result of implementation of water buybacks in 2005-2006. Because the report was not written by Council, it received no support. Bourke and Warren Shire Councils are exploring a joint venture (with support of RDA) to gain funding to conduct extensive research within the region to develop a database of both data and information that examines the economic and social impacts on decision making within the region. Walgett Shire Council highlighted a desire to be involved in this project too. It has also been observed that the water buyback was a significant trigger for population decline at an accelerated rate. **Project Suggestion: Funding of an officer to complete this body of work across the interested LGAs to develop the database that could then be presented alongside business cases, etc, when seeking further funding in**

	future. Or support/ development of business case to obtain funding for the Councils to complete in house.
Tax Incentives and Economic Zones to Encourage People to Move to Region and Stay in Region	Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern and has been escalated by water takebacks and water buybacks within the community. There are currently some programs already available: - RIC Farm Investment Loan – Interest only for first five years of loan, then principal and interest for remainder of ten-year loan (max duration). Maximum amount is $2 M. - RIC Drought Loan – For primary production industries only (e.g. agriculture, horticulture, pastoral, beekeeping or aquaculture industry). Similar monetary value to Farm Investment Loan. - RAA Drought Ready and Resilient Fund – for eligible primary producers (earn at least 50% of gross income or at least $75,000 from primary production). Can not be used directly for labour instead for products, activities or services. Valued at $250,000 and a low interest loan. During the last drought, the mining industry was in demand, and therefore a lot of the farmers who were put out of work as a result of drought were able to be employed within mining industry. Councils are frequently understaffed and under resourced, which offers the opportunity for them to draw upon community members who are out of work to complete projects within the region. A significant concern is the local industries that are not primary producers as they do not have access to the drought fund packages but indirectly suffer from the loss of financial security within the region. **Project Suggestion 1: 'Minimum Wage' (DroughtKeeper Program) to be applied to those experiencing job loss (and consequential income loss) as a result of drought.** **Project Suggestion 2: Develop employment packages for community members who lose their job during drought, and can instead work for Councils to complete projects that have not been completed due to lack of resources e.g. road works, infrastructure developments, etc.** **Project Suggestion 3: Economic support and incentives for local industries to ensure that they are able to remain working in the region during drought periods.** **Project Suggestion 4: Further research and data collection into strategies implemented with success, that have increased retention within rural communities and also increased the number of people entering the region.** *Risk: It was raised that we need to be aware of the existing economic packages that are already available as detailed above. It may be better to explore options for mapping when people need the support, and developing exit strategies for those financial support packages.*
Healthcare and Connectivity	Promotion and awareness of mental health is no longer the most significant concern – this has transitioned to clinical psychiatrist availability. The closest psychiatrists available are in Dubbo and they have closed books. Financial

	security and job loss was a significant contributing factor to the experienced mental health concerns. Access to internet is a significant problem and affects connectivity within the regions to medical support and industry assistance. **Project Suggestion 1: Increased opportunities for individuals to access clinical support (not only in closer proximity to region but also with increased availability).** **Project Suggestion 2: Improved network connectivity.**
Regional and Rural Skill Building – Ensuring Ongoing Capacity and Diversification	Historically, the rigid requirements around paperwork, etc, for subcontractor work within the regions was minimal. As a result, individual contractors were able to complete work on a per job cost (instead of an hourly or daily rate) and could organise the staff they wanted from the community to complete the project. The paperwork and developed legislation has become a significant challenge that is affecting the ability for contractors to deliver projects. In the last drought the Bourke region were saved by Carbon Farming and the Goat industry. Small businesses (local businesses not primary producers) in the town suffered more than graziers. **Project Suggestion: Workshops and opportunities for individuals to develop the skills required for carbon farming and working within carbon markets, getting their businesses online, skill building – developing alternate 'side-hustles' that can be leveraged into primary income sources during drought periods when their usual income source is jeopardised.**

8. 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. 9 responses were recorded.

Project Name and Description	Average Score (1-10)
Water Security - Weirs: State Government has initiated a project 'Fish passage: Reconnecting the Northern Basin project' which involves the lowering of weir walls in order to enable the construction of fish passages e.g. Fish Locks. Phase 1 will include the modification to the Banarway Weir, Calmundi Weir and Louth Downstream Weir. The impact of dropping the weir wall heights, or removing the suggested 22 weirs across the region, will have critical implications on water security as the storage capacity of dams along the river passage will be significantly reduced. At the end of the 2018-19 drought alone (with current weir structure), there was water in the weir pools at Brewarrina and Collarenebri, but between these two points there were many parts where the river was completely dry. *Project Suggestion:* Advocacy piece for the regions – perception that currently the 'scientists' and 'bureaucracy' do not differentiate the problems associated with the Hume fishway and the Northern River system. Because it worked in the Hume river does not mean it will work in the Northern Rivers.	5.8
Water Security - buybacks: A report was produced in 2010 by Judith Stubbs – 'Social and Economic Impacts of Reduced Irrigation Water' – that assigned monetary values to the costs associated with the social, environmental and economic impacts, job losses and people departure as a result of implementation of water buybacks in 2005-2006. Because the report was not written by Council, it received no support. Bourke and Warren Shire Councils are exploring a joint venture (with support of RDA) to gain funding to conduct extensive research within the region to develop a database of both data and information that examines the economic and social impacts on decision making within the region. Walgett Shire Council highlighted a desire to be involved in this project too. It has also been observed that the water buyback was a significant trigger for population decline at an accelerated rate. *Project Suggestion:* Funding of an officer to complete this body of work across the interested LGAs to develop the database that could then be presented alongside business cases, etc, when seeking further funding in future. Or support/	6.2

development of business case to obtain funding for the Councils to complete in house.	
Tax Incentives and Economic Zones to Encourage People to move to region and stay in region: Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern and has been escalated by water takebacks and water buybacks within the community. *Project Suggestion:* 'Minimum Wage' (DroughtKeeper Program) to be applied to those experiencing job loss (and consequential income loss) as a result of drought.	6.1
Tax Incentives and Economic Zones to Encourage People to move to region and stay in region: Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern and has been escalated by water takebacks and water buybacks within the community. *Project Suggestion:* Develop employment packages for community members who lose their job during drought, and can instead work for Councils to complete projects that have not been completed due to lack of resources e.g. road works, infrastructure developments, etc.	5.8
Tax Incentives and Economic Zones to Encourage People to move to region and stay in region: Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern and has been escalated by water takebacks and water buybacks within the community. *Project Suggestion:* Economic support and incentives for local industries to ensure that they are able to remain working in the region during drought periods.	6.4
Tax Incentives and Economic Zones to Encourage People to move to region and stay in region: Taxation incentives are critical for rural and remote regions to keep people in the region. Declining population is the most significant concern and has been escalated by water takebacks and water buybacks within the community. *Project Suggestion:* Further research and data collection into strategies implemented with success, that have increased retention within rural communities and also increased the number of people entering the region.	5.4
Healthcare and Connectivity: Promotion and awareness of mental health is no longer the most significant concern – this has transitioned to clinical psychiatrist availability. The closest psychiatrists available are in Dubbo and they have closed books. Financial security and job loss was a significant contributing factor to the experienced mental health concerns.	6.6

Project Suggestion: Increased opportunities for individuals to access clinical support (not only in closer proximity to region but also with increased availability).	
Healthcare and Connectivity: 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. *Project Suggestion:* 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.	6.6
Healthcare and Connectivity: Access to internet is a significant problem and affects connectivity within the regions to medical support and industry assistance. *Project Suggestion:* Improved network connectivity.	5.6
Regional and Rural Skill Building - Ensuring ongoing capacity and diversification: Historically, the rigid requirements around paperwork, etc, for subcontractor work within the regions was minimal. As a result, individual contractors were able to complete work on a per job cost (instead of an hourly or daily rate) and could organise the staff they wanted from the community to complete the project. The paperwork and developed legislation has become a significant challenge that is affecting the ability for contractors to deliver projects. In the last drought the Bourke region were saved by Carbon Farming and the Goat industry. Small businesses (local businesses not primary producers) in the town suffered more than graziers. *Project Suggestion:* Workshops / capacity development to provide individuals with skills to identify alternate business opportunities in drought situations that can be leveraged into primary income sources during drought periods when their usual income source is under threat.	6.2

9. 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.

Bourke Shire Council
Bourke Shire Council underscores the continuous cycle of drought and the critical nature of water as a scarce resource, even outside of drought periods. They advocate for framing drought as a persistent condition rather than an occasional event, emphasising the need for community empowerment and economic strengthening to mitigate drought impacts. The council also suggests that while drought support for agriculture is crucial, the broader business community needs more timely support to prevent economic decline.

Brewarrina Shire Council
Brewarrina Shire Council focuses on the critical need for water security and mental health support during drought. They stress the importance of early intervention for mental health and drought preparedness training to enhance community resilience. The council reflects on successful government initiatives that maintained employment and business during drought, yet points out the challenges of ensuring uniform water restrictions and providing critical water supplies for safety and infrastructure maintenance.

Cobar Shire Council
Cobar Shire Council discusses the limitations in agricultural-focused drought support, highlighting the need to support small businesses that often feel the impacts of drought more acutely and rapidly than the agricultural sector. They emphasize the importance of creating a

timeline with indicators for councils to gauge economic resilience and respond appropriately, also acknowledging the private sector's role in providing employment opportunities during drought periods.

Walgett Shire Council
Walgett Shire Council comments on the social cohesion efforts during drought periods, including holding small community gatherings. The council notes the lack of preventative pastoral care and social support services compared to previous droughts, suggesting this may have contributed to increased population loss. They also highlight the minimal government support for cross-sector employment and the necessity of broader applications beyond agriculture due to the interconnected nature of regional economies and resources like water.

Discussion Insights
Discussions suggest a pivot from the heavy focus on agriculture to a broader consideration of regional resilience, incorporating the environmental realities of arid conditions. A need for more inclusive engagement strategies is noted, especially with Aboriginal communities and the pivotal 30-40 age demographic. The vision and objectives of the Regional Drought Resilience Plans (RDRPs) should reflect the economic, social, and environmental impacts while removing any narrow focus on agriculture to encompass the wider landscape and community needs.

10. 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 5: Shortlisted Project Economic Feasibility Assessment and Benefit Cost Ratios

Contents

Figures

Tables

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 Region[1].

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 second Plan (RDR Plan-004) covering Bourke Shire, Brewarrina Shire, Cobar Shire and Walgett Shire, which together make up the Far 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 plan[2];
- A decision tree for each shortlisted project that determines the steps to assess and realise the net benefits of the project proposed[3]; and

[1] 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.

[2] Pg. 20-21, TPG23-08 NSW Government Guide to Cost-Benefit Analysis

[3] See Scenario Planning, as an input to Real Options Assessment, Pg. 81 ff. TPG23-08 NSW Government Guide to Cost-Benefit Analysis

- A rapid cost-benefit analysis[4], 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. Where primary data is lacking, the assessment proceeds by estimating though 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. 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:

- **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.

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

5.1.1. Projects for RDRP 004

The final shortlisted projects for Regional Drought Resilience Plan 004 for Far Northwest NSW - Bourke Shire Council, Brewarrina Shire Council, Cobar Shire Council and Walgett Shire Council are listed below.

The following specific projects in Area 004:

Water Security:

Water Security Groundwater - Proving of groundwater resources (quality and flow) and installation of standpipes

- Improve groundwater quality monitoring through auditing the current bore network, implementing regular sampling programs and collate groundwater quality data from industry and government sources into one database. Invest in technology and research to understand how treated groundwater can support towns, landholders and industries to secure a water supply.

Off-stream storage at Walgett

- The Namoi Draft Regional Water Strategy[5] included an identification that Walgett township had issues with water reliability. The town relies on in-stream water supply from a weir. In recent years, releases from Keepit dam for the town supply have had to cease in drought periods, and emergency supply measures put in place. One of these is supplementing the surface supply by groundwater, though that supply has aesthetic water quality issues that have required reverse osmosis treatment to reduce sodium levels in previous droughts. An off stream water storage offers the potential to reduce the need for this extra water treatment and other emergency water supply measures when dam releases cease in drought.

Develop a water reuse project in Cobar Shire Council

- Regional Water Strategy Macquarie–Castlereagh – Implementation Plan[6] identified the Nyngan Cobar Pipeline as a specific strategy for Cobar. In addition, the Strategy stressed the importance of water conservation and reuse. However, there were no implementation proposals in this area specifically for Cobar, with the focus on boosting leakage reduction programs. As a mining town, there's potential for recycling that may not be available to other towns and which could be theoretically be implemented relatively cost effectively.

Telecommunications Security

- **Grant program to help farmers purchase Agtech devices and applications.** Measure water productivity and water sustainability indices for cotton production systems, identifying potential changes to water use, productivity and sustainability.

Water Planning

Two relevant projects, under the heading Long Term Water Security Projects were shortlisted in the 004 Region with water planning objectives

- Development [of a] water security strategy to ensure sustainable water management and availability in the Barwon-Darling catchment area.
- Develop a regional water security, (including infrastructure) plan for the Walgett, Brewarrina, Bourke and Cobar Shires

In conceptualising these projects, the plan including 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 two

[5] NSW Department of Planning, Industry and Environment (2021) Draft Regional Water Strategy Namoi: Strategy March PUB20/313

[6] NSW Department of Planning, Industry and Environment (2023) Regional Water Strategy Macquarie–Castlereagh – Implementation Plan October

proposed plans would occur as part of the base case, but the development of the plans into particular options has been measured by representative case studies of weir raising, off stream storage and reuse, in particular the Cobar reuse project which was proposed elsewhere.

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

- Base Case: Planning without projects: it is assumed for the sake of clarity, that considering a program with up to six 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.

- Option 1: Water security: Groundwater – investigation and development of bore fields in the region
- Option 2: Telecommunications Upgrade – investigation of mobile signal blackspots and developing a plan to address this issue, including a grants program for agtech devices.
- Option 3: Water security: Off stream storage Walgett – a proposed off stream storage near the Namoi Barwon river junction.
- Option 4: Water security: Weir Raising – as a part of the third option, a benchmarked weir upgrade
- Option 5: Water Security: Off stream storage generic - as a part of the third option, an alternative
- Option 6: Water security: Cobar Water Reuse – a water recycling project in the town with the greatest industrial demand for water in the region.

5.2. Project 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 004, the following Logic Map was presented:

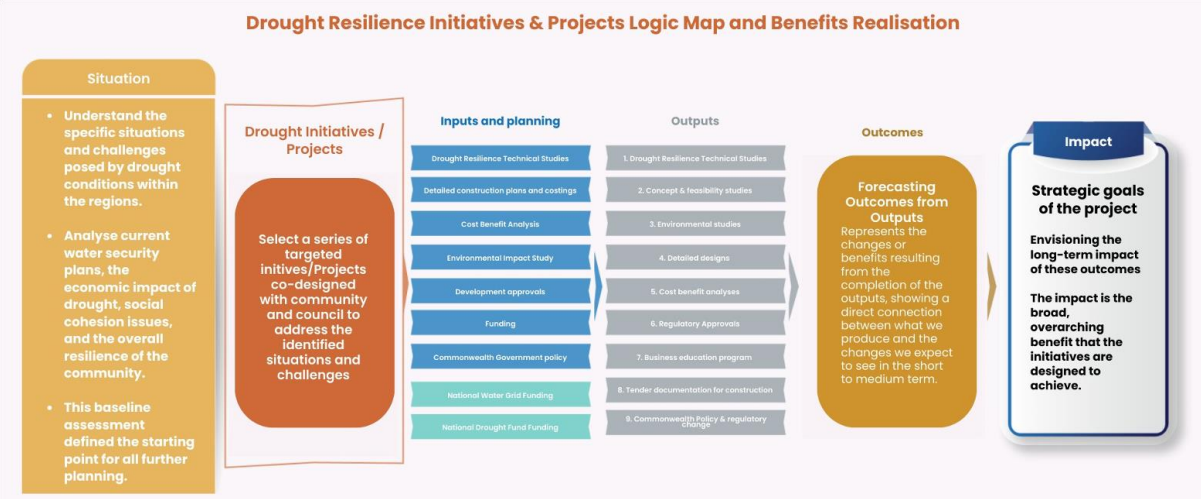


Figure 1: Initiatives and Projects Overview Logic Map

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

REGIONAL DROUGHT RESILIENCE PLAN 004 (BOURKE, BREWARRINA, COBAR AND WALGETT LOCAL GOVERNMENT AREAS)

Drought Resilience Initiatives & Projects Logic Map and Benefits Realisation

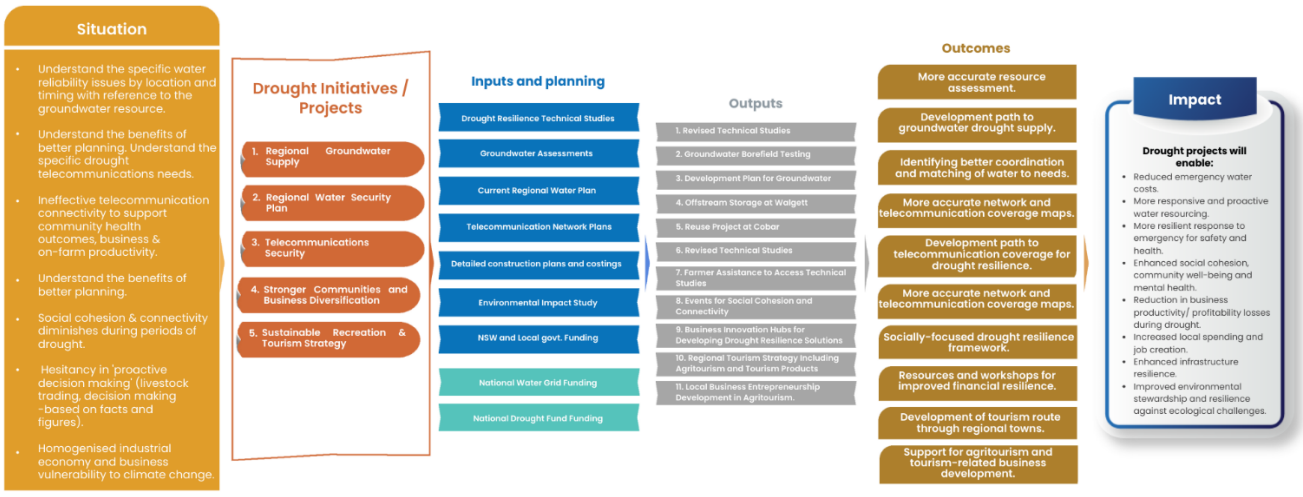
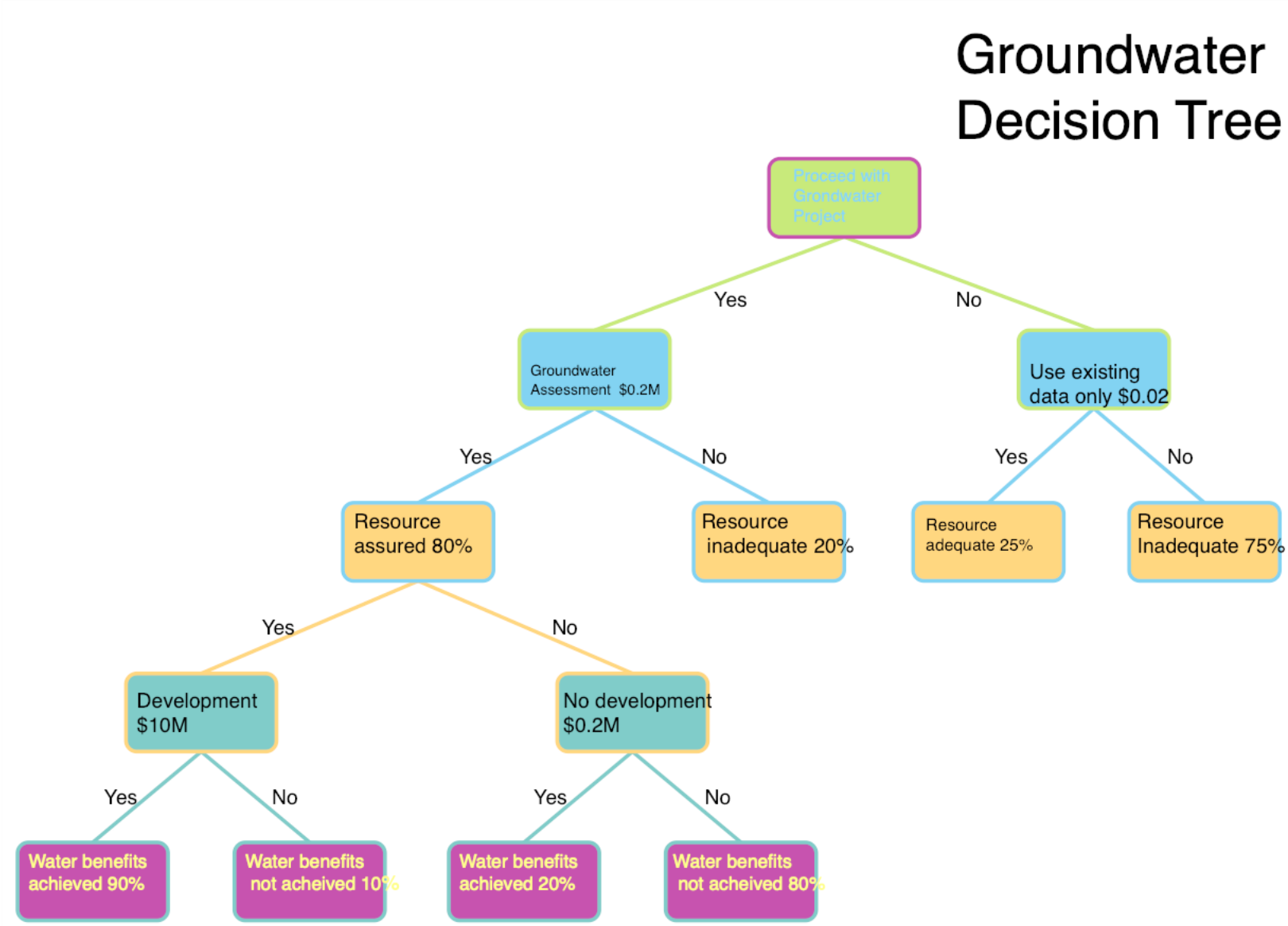


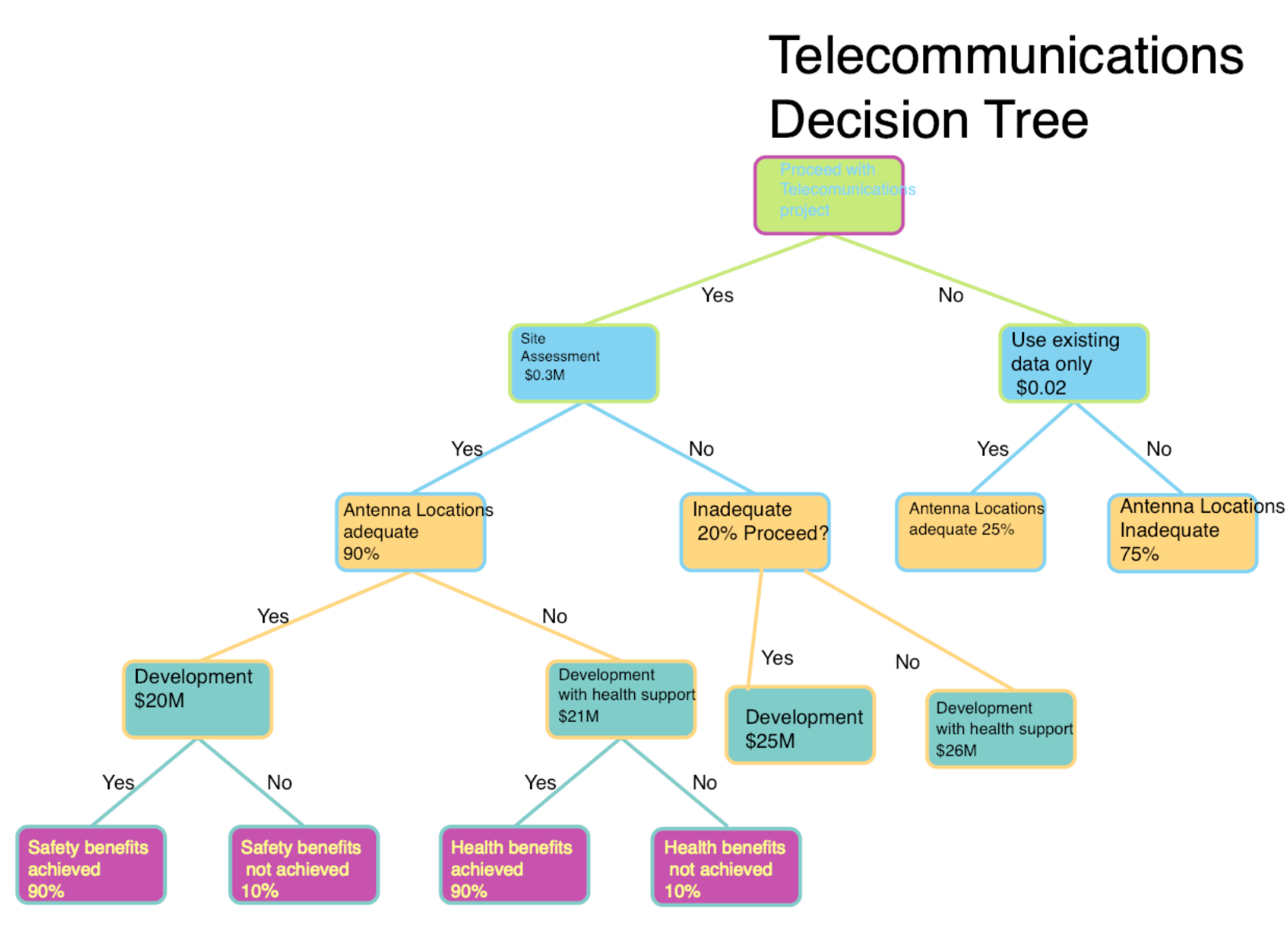
Figure 2: Projects Logic Map

5.3. Decision Analysis

In the absence of detailed planning and information, decision analysis allows a risk based assessment of likely costs and benefits of strategies. Decision analysis incorporates step wise probability estimates of costs and benefits of each decision identified as necessary to reach the project objective. A groundwater example is shown.

It has been used in this analysis where investigations are incomplete and the yield or viability of a groundwater aquifer or the density of and area of mobile phone towers are unknown, and will be only known after the investigations are complete.


Groundwater
Decision Tree
Proceed with
Grondwater
Project
Yes
No
Groundwater
Assessment $0.2M
Use existing
data only $0.02
Yes
No
Yes
No
Resource
assured 80%
Resource
inadequate 20%
Resource
adequate 25%
Resource
Inadequate 75%
Yes
No
Development
$10M
No development
$0.2M
Yes
No
Yes
No
Water benefits
achieved 90%
Water benefits
not acheived 10%
Water benefits
achieved 20%
Water benefits
not acheived 80%


Telecommunications
Decision Tree
Proceed with Telecomunications project
Yes
No
Site Assessment $0.3M
Use existing data only $0.02
Yes
No
Yes
No
Antenna Locations adequate 90%
Inadequate 20% Proceed?
Antenna Locations adequate 25%
Antenna Locations Inadequate 75%
Yes
No
Yes
No
Development $20M
Development with health support $21M
Development $25M
Development with health support $26M
Yes
No
Yes
No
Safety benefits achieved 90%
Safety benefits not achieved 10%
Health benefits achieved 90%
Health benefits not achieved 10%

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 **Error! Not a valid bookmark self-reference.**.

6.1. Groundwater

The costing for the groundwater project has been developed using dispersed investment of exploratory and production bore drilling, repeated across a three phase program at a total cost of $0.6M. Test drilling and. field development cost of $120,000.Productions is based on three town production bores, each with a drilling and lining cost of $15,000, and a pump and piping cost (near to treatment plant) of $35,000.

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” iinvestments 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.

Table 1: Mobile phone coverage investment

Telecommunications	Cost per town/ community	Location	Number of communities	Total cost
Black spot review	$684,000	Remote Aboriginal communities	19	$13,000,000
Black spot review	$960,000	Outback Australia	43	$41,300,000

In addition, the project would have an optional extension to provide agtech devices and appropriate support and training.

Table 2: Water and Agtech devices

Item	Unit cost	Source
Water quality and agtech probes	$2,000	Market price

6.3. Water security

The main report shortlists a number of projects on strategic water planning. To scope how these might be implemented, a range of storage options are evaluated in Options 3 to 6. The costs have been benchmarked from Queesnland and NSW studies.

Table 3: Capital Cost Benchmarks

	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.
	$/M of wall				
Weir Rehabilitation	$400,000	Darling weirs program	30	$12,000,000	See also Qld weir upgrades of $3m to $11M)

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:

Table 4: Population and Water Demand

	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	3732	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 (kL per household pa)	597	400	203	300	314	165	231
Potable Water Consumption (kL per household pa)*	100	100	100	100	100	100	100

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 far west 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.

The result is Option 5

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:

Table 5: General Telecommunications 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	$56	35 hour week
Value of time saving per annum	$5.59	
Total population Impacted	*21,757*	Population of the region
Impact on state population (hours per person)	0.001	
Value of times savings per annum per person	$0.06	
Total population Impacted	8,144,000	State Population

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

8. Net Benefit

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

8.1. Results

Table 6: Rapid Benefit Cost Analysis Results

Option	NPV	BCR	NPV Rank out of 6	BCR Rank out of 6
Base Case: Planning without projects	-$195,238		-	-
Option 1: Water security: Groundwater	$1,258,513	5.131	**3**	**1**
Option 2: Telecommunications Upgrade	$9,424,809	4.709	**1**	**2**
Option 3: Water security: Offstream storage Walgett	$4,671,546	1.811	**2**	**4**
Option 4: Water security: Weir Raising	-$1,367,581	0.884	**6**	**6**
Option 5: Water Security: Offstream storage generic	-$470,114	0.957	**5**	**5**
Option 6: Water security: Cobar Water Reuse	$793,840	2.014	**4**	**3**

Source: analysis using NSW Treasury Rapid BCA Model

Options 1, 2 3 and 6 have benefit cost ratios greater than 1 at 5% discount rate, while options 4 and 5 do not.

8.2. Sensitivity and Distributional Analysis

The results are sensitive to discount rate in that all options have positive Net Present Values at a lower discount rate (3%), but Options 4 and 5 retain a negative Net Present Value at a higher discount rate (7%).

Table 7: Sensitivity testing – Discount Rate

Sensitivity Option	3% Discount Rate NPV	BCR	7% Discount Rate NPV	BCR	10% Discount Rate NPV	BCR
Base Case	-$197,087		-$193,458		-$190,909	0.000
Option 1	$1,391,675	5.111	$1,142,186	5.146	$993,765	5.158
Option 2	$12,715,485	6.008	$7,089,257	3.788	$4,707,761	2.850
Option 3	$7,616,135	2.319	$2,596,053	1.452	$500,297	1.087
Option 4	$1,342,659	1.114	-$3,303,646	0.720	-$5,289,190	0.552
Option 5	$2,494,661	1.229	-$2,564,603	0.765	-$4,687,059	0.570
Option 6	$1,115,599	2.227	$566,258	1.815	$335,208	1.554

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

Table 8: Sensitivity to Cost and Benefit Variance

Option	Costs +20% NPV	BCR	Costs - 20% NPV	BCR	Benefits +20% NPV	BCR	Benefits - 20% NPV	BCR
Base Case	-$234,286		-$156,190		-$195,238		-$195,238	
Option 1	$1,197,579	4.276	$1,319,447	6.413	$1,571,150	6.157	$945,877	4.105
Option 2	$8,916,656	3.925	$9,932,961	5.887	$11,817,923	5.651	$7,031,695	3.768
Option 3	$3,520,118	1.510	$5,822,975	2.264	$6,757,284	2.174	$2,585,808	1.449
Option 4	-$3,728,533	0.737	$993,371	1.105	$719,855	1.061	-$3,455,017	0.707
Option 5	-$2,651,066	0.797	$1,710,839	1.196	$1,616,816	1.148	-$2,557,043	0.766
Option 6	$637,196	1.678	$950,484	2.517	$1,109,252	2.416	$478,428	1.611

If costs fall and benefits rise by 20%, all projects become Net Present Value positive (BCR >1).

Table 9: Sensitivity to Negatively Correlated Benefit/Cost Variance

Scenario Option	Low Case Scenario NPV	BCR	High Case Scenario NPV	BCR
Base Case	-$234,286		-$156,190	
Option 1	$884,943	3.420	$1,632,084	7.696
Option 2	$6,523,542	3.140	$12,326,075	7.064
Option 3	$1,434,380	1.208	$7,908,713	2.717
Option 4	-$5,815,969	0.589	$3,080,808	1.326
Option 5	-$4,737,996	0.638	$3,797,768	1.435
Option 6	$321,784	1.342	$1,265,896	3.020

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. Conclusions

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 case

Base Year (financial)	0
Appraisal Start Year (financial)	0
Appraisal Length (years)	30
Discount Rate p.a.	5%

Base Case Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Water planning	$195,238		$100,000	$95,238	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs			**$100,000**	**$95,238**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Benefit Category	**PV**	**Year:**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
Total Benefits			**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Option 1 Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Groundwater	$499,908		$200,000	$0	$0	$0	$164,540	$0	$0	$0	$135,368	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs			**$200,000**	**$0**	**$0**	**$0**	**$164,540**	**$0**	**$0**	**$0**	**$135,368**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Benefit Category	**PV**	**Year:**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
Water planning	$24,323		$3,000	$2,857	$2,721	$2,592	$2,468	$2,351	$2,239	$2,132	$2,031	$1,934	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Groundwater	$1,538,860		$0	$0	$226,757	$215,959	$205,676	$195,882	$186,554	$177,670	$169,210	$161,152	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Benefits			**$3,000**	**$2,857**	**$229,478**	**$218,551**	**$208,144**	**$198,232**	**$188,792**	**$179,802**	**$171,240**	**$163,086**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Option 2 Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Telecommunications	$2,736,000		$2,736,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs			**$2,736,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Benefit Category	**PV**	**Year:**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
Telecommunications	$615,544		$0	$0	$90,703	$86,384	$82,270	$78,353	$74,622	$71,068	$67,684	$64,461	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Health benefits	$3,137,631		$0	$0	$200,577	$191,026	$181,929	$173,266	$165,015	$157,157	$149,674	$142,546	$135,758	$129,294	$123,137	$117,273	$111,689	$106,370	$101,305	$96,481	$91,887	$87,511	$83,344	$79,375	$75,595	$71,996	$68,567	$65,302	$62,192	$59,231	$56,410	$53,724
General comms benefits	$1,748,047		$0	$0	$111,746	$106,425	$101,357	$96,530	$91,934	$87,556	$83,387	$79,416	$75,634	$72,032	$68,602	$65,336	$62,224	$59,261	$56,439	$53,752	$51,192	$48,754	$46,433	$44,222	$42,116	$40,110	$38,200	$36,381	$34,649	$32,999	$31,428	$29,931
Statewide comms benefits	$6,464,349		$0	$0	$413,241	$393,563	$374,822	$356,973	$339,975	$323,785	$308,367	$293,683	$279,698	$266,379	$253,694	$241,614	$230,108	$219,151	$208,715	$198,776	$189,311	$180,296	$171,710	$163,534	$155,746	$148,330	$141,267	$134,540	$128,133	$122,031	$116,220	$110,686
Total Benefits			**$0**	**$0**	**$816,267**	**$777,397**	**$740,378**	**$705,122**	**$671,545**	**$639,567**	**$609,111**	**$580,106**	**$491,090**	**$467,705**	**$445,434**	**$424,222**	**$404,021**	**$384,782**	**$366,459**	**$349,009**	**$332,389**	**$316,561**	**$301,487**	**$287,130**	**$273,458**	**$260,436**	**$248,034**	**$236,223**	**$224,974**	**$214,261**	**$204,058**	**$194,341**

Option 3 Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Offstream Storage	$5,952,381		$5,000,000	$952,381	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs			**$5,000,000**	**$952,381**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Benefit Category	**PV**	**Year:**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
Offstream Storage	$10,428,689		$0	$0	$666,667	$634,921	$604,686	$575,892	$548,468	$522,351	$497,477	$473,788	$451,226	$429,739	$409,276	$389,786	$371,225	$353,548	$336,712	$320,678	$305,408	$290,864	$277,014	$263,823	$251,260	$239,295	$227,900	$217,048	$206,712	$196,869	$187,494	$178,566
Total Benefits			**$0**	**$0**	**$666,667**	**$634,921**	**$604,686**	**$575,892**	**$548,468**	**$522,351**	**$497,477**	**$473,788**	**$451,226**	**$429,739**	**$409,276**	**$389,786**	**$371,225**	**$353,548**	**$336,712**	**$320,678**	**$305,408**	**$290,864**	**$277,014**	**$263,823**	**$251,260**	**$239,295**	**$227,900**	**$217,048**	**$206,712**	**$196,869**	**$187,494**	**$178,566**

Option 4 Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052
Weir Raising	$12,000,000		$12,000,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs			**$12,000,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Benefit Category	**PV**	**Year:**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**
Weir Raising	$10,437,181		$0	$667,210	$635,438	$605,179	$576,361	$548,915	$522,776	$497,882	$474,173	$451,594	$430,089	$409,609	$390,104	$371,527	$353,835	$336,986	$320,939	$305,656	$291,101	$277,239	$264,037	$251,464	$239,490	$228,085	$217,224	$206,880	$197,029	$187,646	$178,711
Total Benefits			**$0**	**$667,210**	**$635,438**	**$605,179**	**$576,361**	**$548,915**	**$522,776**	**$497,882**	**$474,173**	**$451,594**	**$430,089**	**$409,609**	**$390,104**	**$371,527**	**$353,835**	**$336,986**	**$320,939**	**$305,656**	**$291,101**	**$277,239**	**$264,037**	**$251,464**	**$239,490**	**$228,085**	**$217,224**	**$206,880**	**$197,029**	**$187,646**	**$178,711**

Option 5 Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Offstream Storage	$11,100,000		$11,100,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Costs			**$11,100,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Benefit Category	**PV**	**Year:**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**	**2053**
Offstream Storage	$10,434,648		$0	$0	$667,048	$635,283	$605,032	$576,221	$548,782	$522,649	$497,761	$474,058	$451,484	$429,985	$409,509	$390,009	$371,437	$353,750	$336,904	$320,861	$305,582	$291,031	$277,172	$263,973	$251,403	$239,432	$228,030	$217,172	$206,830	$196,981	$187,601	$178,668
Total Benefits			**$0**	**$0**	**$667,048**	**$635,283**	**$605,032**	**$576,221**	**$548,782**	**$522,649**	**$497,761**	**$474,058**	**$451,484**	**$429,985**	**$409,509**	**$390,009**	**$371,437**	**$353,750**	**$336,904**	**$320,861**	**$305,582**	**$291,031**	**$277,172**	**$263,973**	**$251,403**	**$239,432**	**$228,030**	**$217,172**	**$206,830**	**$196,981**	**$187,601**	**$178,668**

Option 6 Results ($)

Cost Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Cabar Water Reuse Facility	$500,000		$500,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Cobar Water Reuse Operating	$478,458		$0	$30,095	$28,662	$27,297	$25,997	$24,759	$23,580	$22,458	$21,388	$20,370	$19,400	$18,476	$17,596	$16,758	$15,960	$15,200	$14,476	$13,787	$13,130	$12,505	$11,910	$11,343	$10,802	$10,288	$9,798	$9,332	$8,887	$8,464	$8,061	$7,677
Total Costs			**$500,000**	**$30,095**	**$28,662**	**$27,297**	**$25,997**	**$24,759**	**$23,580**	**$22,458**	**$21,388**	**$20,370**	**$19,400**	**$18,476**	**$17,596**	**$16,758**	**$15,960**	**$15,200**	**$14,476**	**$13,787**	**$13,130**	**$12,505**	**$11,910**	**$11,343**	**$10,802**	**$10,288**	**$9,798**	**$9,332**	**$8,887**	**$8,464**	**$8,061**	**$7,677**

Benefit Category	PV	Year:	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
Avoided Water Cost	$1,577,060		$0	$0	$100,815	$96,015	$91,443	$87,088	$82,941	$78,992	$75,230	$71,648	$68,236	$64,987	$61,892	$58,945	$56,138	$53,465	$50,919	$48,494	$46,185	$43,985	$41,891	$39,896	$37,996	$36,187	$34,464	$32,823	$31,260	$29,771	$28,353	$27,003
Total Benefits			**$0**	**$0**	**$100,815**	**$96,015**	**$91,443**	**$87,088**	**$82,941**	**$78,992**	**$75,230**	**$71,648**	**$68,236**	**$64,987**	**$61,892**	**$58,945**	**$56,138**	**$53,465**	**$50,919**	**$48,494**	**$46,185**	**$43,985**	**$41,891**	**$39,896**	**$37,996**	**$36,187**	**$34,464**	**$32,823**	**$31,260**	**$29,771**	**$28,353**	**$27,003**