# Burnett Regional Drought Resilience Plan 2024–2030

Australian Government
Department of Agriculture, Fisheries and Forestry

Future Drought Fund

Queensland Government

Rural Economies
Centre of Excellence

The Burnett Regional Drought Resilience Plan has been developed as a partnership between the Rural Economies Centre of Excellence and Regional Development Australia – Wide Bay Burnett.

The Regional Drought Resilience Planning program is jointly funded through the Australian Government's Future Drought Fund and the Queensland Government. Development of the plan has been supported by the Australian Government (Department of Agriculture, Fisheries and Forestry) and the Queensland Government (Department of Primary Industries).



**Acknowledgement of Country**

*We pay our respects to the Aboriginal and Torres Strait Islander ancestors of this land, their spirits and their legacy. The foundations laid by these ancestors – our first Australians – give strength, inspiration and courage to current and future generations, both Indigenous and non-Indigenous, towards creating a better Queensland.*

*We recognise it is our collective efforts and responsibility as individuals, communities and governments to ensure equality, recognition and advancement of Aboriginal and Torres Strait Islander Queenslanders across all aspects of society and everyday life.*

*On behalf of the Queensland Government, we offer a genuine commitment to fearlessly represent, advocate for, and promote, the needs of Aboriginal and Torres Strait Islander Queenslanders with unwavering determination, passion and persistence.*

*As we reflect on the past and give hope for the future, we walk together on our shared journey to reconciliation where all Queenslanders are equal.*

**Contact us**

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**Call**

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**Interpreter statement**

The Queensland Government is committed to providing accessible services to Queenslanders from all culturally and linguistically diverse backgrounds. If you have difficulty in understanding the regional drought resilience plan, you can contact us for assistance and we will arrange an interpreter to effectively communicate the plan to you.



**Cover image:** Aerial view of Bundaberg and Burnett river, Australia.

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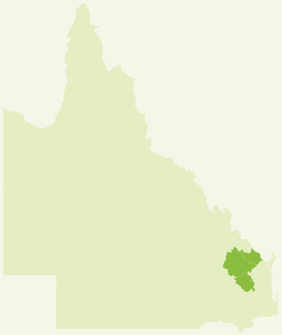
# Foreword



**Regional Development Australia Wide Bay Burnett (RDA WBB) is proud to be a regional partner of the Rural Economies Centre of Excellence to support the development of this Burnett Regional Drought Resilience Plan.**

Drought is an enduring feature of Australia's landscape with significant economic, social and environmental impacts on people and local communities. The importance of a Regional Drought Resilience Plan that reflects the Mary region's unique regional landscapes and which draws on local knowledge of our communities cannot be overstated.

This plan is truly community-owned and led with its development involving local governments, regional organisations, the agricultural sector and the community. The plan aims to empower individuals and communities to better manage future dry seasonal conditions, including droughts and other natural disasters, and inform governments about our region's needs and priorities to leverage future support and investment.

Importantly these plans recognise that the Mary's most important resources are its people. Within the plans are a number of actions to ensure that people get the mental health and wellbeing support they need during periods of drought and natural disasters.

RDA WBB is dedicated to strengthening its role as a regional partner of this Regional Drought Resilience Plan and I invite you to collectively work within your community to address the impacts of drought to build resilience in our region for future generations.

**Chair**
**Regional Development Australia Wide Bay Burnett**

# Acronyms

| | |
|---|---|
| **ABARES** | Australian Bureau of Agricultural and Resource Economics and Sciences |
| **BMRG** | Burnett Mary Regional Group |
| **BoM** | Bureau of Meteorology |
| **CQU** | Central Queensland University |
| **CSIRO** | Commonwealth Scientific and Industrial Research Organisation |
| **DPI** | Department of Primary Industries |
| **FDF** | Future Drought Fund |
| **GDP** | Gross Regional Product |
| **GVP** | Gross Value of Production |
| **LGA** | Local Government Area |
| **LIDAR** | Light Detection and Ranging |
| **MRCCC** | Mary River Catchment Coordinating Committee |
| **NRM** | Natural Resource Management |
| **PHN** | Primary Health Network |
| **QDMA** | Queensland Disaster Management Arrangements |
| **QRA** | Queensland Reconstruction Authority |
| **QSDR** | Queensland Strategy for Disaster Resilience |
| **RDRP** | Regional Drought Resilience Planning |
| **RECoE** | Rural Economies Centre of Excellence |
| **RFCS** | Rural Financial Counselling Service |
| **ROG** | Regional Oversight Group |
| **TAFE** | Technical and Further Education |
| **UNDRR** | United Nations Office for Disaster Risk Reduction |
| **UniSQ** | University of Southern Queensland |

**Image:** Sunrise at Elliott Heads Beach, Queensland, Australia.

# Introduction

## Background

The Regional Drought Resilience Planning (RDRP) program is jointly funded through the Australian Government's Future Drought Fund and the Queensland Government.

The Queensland Department of Primary Industries (DPI) has partnered with the Rural Economies Centre of Excellence (RECoE) with the purpose to have an impact on how regions can survive and thrive into the future.

The RDRP process will:

- foster learning and build social capital
- foster co-designed, community-led planning and collective
- ownership of the resulting plan and its implementation
- leverage existing local, regional and state strategic planning
- recognise the diversity of people, businesses and
- landscapes involved in agricultural production
- provide linkages with the FDF Drought Resilience Adoption and Innovation Hubs.

Five regions produced RDR plans in the foundational year. In the second round, the remaining nine regions developed RDR plans to prepare for future droughts, with a sharp focus on the agricultural sector and allied industries.

Each plan will build upon the Regional Resilience Strategy as part of the Queensland Government's Strategy for Disaster Resilience, led by the Queensland Reconstruction Authority. Based on evidence and collaboration though partnering with local councils, regional stakeholders and other organisations, the plans – led and owned by the community – aim to drive decisions, actions and investments to proactively manage drought risk.

## Regional Drought Resilience Planning

Australia, and particularly the State of Queensland, is no stranger to drought. First Nations traditional stories of drought go back thousands of years and European settlers have officially recorded drought in Australia since the late 1700s. Droughts have been officially 'declared' in Queensland since 1897[1].

The economic, social and environmental costs of drought in Queensland are immeasurable. The toll taken on regions and their communities is high and the impacts often linger for decades. So, in recent years there has been a growing emphasis on the importance of drought resilience planning. This means planning now for the next drought and considering how to do things better or differently to make our communities more resilient.

## Alignment with the Queensland Strategy for Disaster Resilience and Regional Resilience Strategies

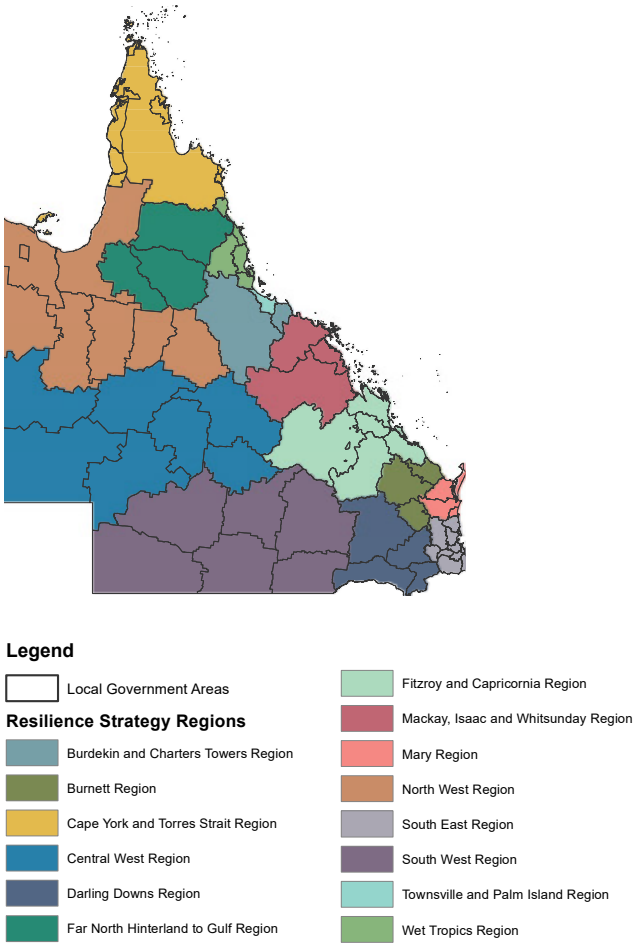
Queensland is the most disaster impacted state in Australia, and Queenslanders are susceptible to a variety of hazards. We are facing unprecedented change in both our current and future operating environment with a dynamic political, social, economic and policy landscape surrounding disaster risk reduction and resilience. This is being amplified by natural hazards becoming more frequent and intense due to a changing climate.

The Queensland Strategy for Disaster Resilience 2022-2027 (QSDR) promotes a systems approach to resilience that connects with a range of agencies and sectors to deliver improved outcomes for Queensland.

Queensland's suite of Regional Resilience Strategies ensure every region across Queensland is now part of a locally-led, regionally-coordinated and state-facilitated blueprint to strengthen disaster resilience.

It is often agreed that resilience planning for disasters and resilience planning for drought should be aligned. The Queensland RDRP program builds on the work completed under the QSDR, led by the Queensland Reconstruction Authority (QRA). The RDRP program provides the opportunity to have a clear focus on drought risk in the context of regional resilience, addressing the unique challenges it poses and the need for setting out drought-specific priorities and actions at a regional and local level.

**Figure 1:** Queensland's Regional Resilience Strategies (Regions and Local Government Areas), Queensland Strategy for Disaster Resilience 2022–2027.[40]




## Regional planning and engagement

This RDR plan was developed through a collaboration between RECoE, Regional Development Australia – Wide Bay Burnett. and key regional stakeholders.

The engagement model was developed from earlier work undertaken by RECoE, Red Cross Queensland[2], the Queensland Reconstruction Authority (QRA)[3], CSIRO[4] and was informed by international best practice from the World Bank and the UNDRR[5]. The plan has been reviewed by the CSIRO – appointed as an independent assessor by the Australian Government – and their feedback has been incorporated in the final plan.

The RDRP engagement process was iterative and involved a systems approach that has enabled community reflection on issues, with combined data paying respect to local, traditional, and scientific knowledge. The plan was co-designed with local stakeholders, using an approach that emphasised trust-building, building on existing networks, local co-design and commitment, risk-informed processes, place-based and regional strategies, locally-led and coordinated solutions and integrated multi-objective responses.

| Unique stakeholders | Number |
|---|---|
| LGAs | 11 |
| Formalised conglomerations of LGAs | 1 |
| Farming groups | 4 |
| Farming businesses | 50 |
| Regional Development Australia Committees | 8 |
| Regional NRM organisations | 8 |
| Indigenous groups/ organisations | 7 |
| Agricultural industry representative groups (peak bod-ies) | 13 |
| Development commissions | 0 |
| Emergency services | 0 |
| Community service organisations | 19 |
| Research organisations | 6 |
| Water authorities | 1 |
| Utility organisations | 2 |
| Financial institutions | 3 |
| Farm Advisers/ Consultants | 8 |
| Drought Resilience Adoption and Innovation Hubs | 10 |
| * Chambers of Commerce | 3 |
| * Agribusinesses | 12 |
| * Other businesses | 0 |
| * State Government agencies | 6 |
| * Federal Government agencies | 2 |
| * Other FDF programs | 8 |
| * Individual / community member | 0 |
| * Governance Groups | 0 |
| **Total engagements** | |
| Formal network meetings | 25 |
| Consultation / information forums | 24 |
| Workshops and other interactive activities (including online) | 27 |
| Communication activities | 8 |
| One on one consultations | 84 |

## Key principles and concepts: drought and resilience

Whilst there is no universally accepted definition of drought, in Australia, the Bureau of Meteorology (BoM) states, *"drought, in general, means acute water shortage"*.[6]

In Queensland, drought is 'declared' for a local drought area and/or individual properties. Local drought areas are drought declared *"when the rainfall recorded during the previous 12 months (minimum) is in the lowest (or driest) decile or below the 10th percentile when compared to the long-term historical rainfall"*.[7] This is the technical definition of drought utilised in this plan.

'Resilience' is harder to define. The World Bank has defined resilience as the ability *"… to anticipate, absorb, accommodate or recover from the effects of a hazardous event in a timely and efficient manner"*.[8]

The Sendai Framework for Disaster Risk Reduction: 2015-2030[9] defines resilience as:

***"the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management".***

Australia's CSIRO perhaps more specifically states:

***"drought resilience will result in a regional Australia that can endure deeper, longer droughts, and recover from them sooner. This will allow our food and agribusinesses to boost national farm income, increase food security, and protect the regional jobs that rely on agriculture. It will increase the resilience of rural and regional communities that depend on agriculture and improve environmental outcomes".[10]***

This plan utilises drought resilience objectives that broadly align with the four key objectives underpinning the Queensland Strategy for Disaster Resilience (Figure 2).

Experience from earlier works on resilience has highlighted the crucial importance of community and regional resilience, sometimes referred to as 'societal' resilience. For instance, work by QRA has revealed that community stakeholders report that their 'societal resilience' is significantly affected by chronic and enduring stresses (long-term megatrends such as ageing populations, fluctuating commodity prices), periodic stresses (such as drought) that are often cyclical, acute shocks (such as rapid-onset disasters), cumulative shocks (often a rapid succession of shocks or the increased impacts of the combined stresses and shocks).

Whilst drought has been often referred to as *"an enduring feature of the Australian landscape"*, when viewed in this context of community resilience, drought is also understood as a periodic stress that comes and goes. However, it is now evident that the warming caused by climate change has added to the variability in Queensland's weather and *"increased the severity of drought conditions during periods of below-average rainfall"*[11].

**Figure 2:** Four key objectives of the Queensland Strategy for Disaster Resilience 2022–2027.[41]


Importantly, our approach and engagement processes encouraged community and regional stakeholders to express their own observations of 'drought' and 'resilience'. We have combined the 'local' with 'outside' definitions to produce the regional understanding that underpins this plan and identifies drought impacts, risks and pathways to resilience.

**Figure 4:** Queensland RDRP elements of drought resilience.[42]

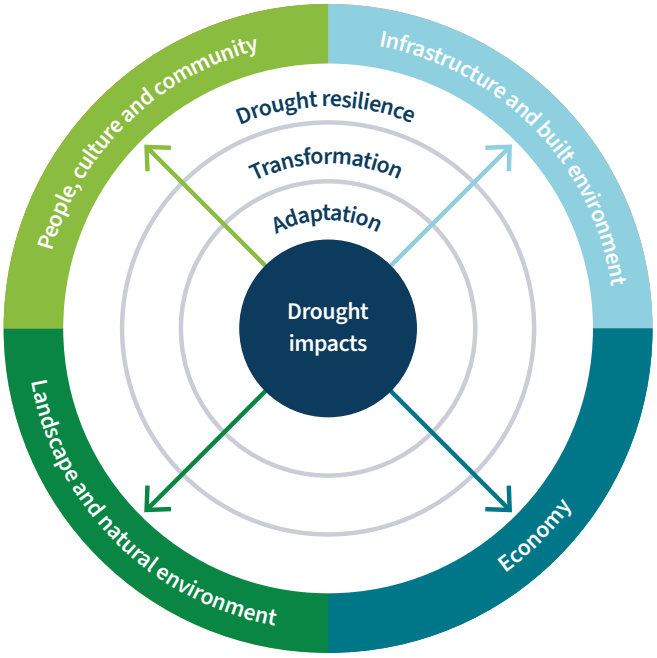
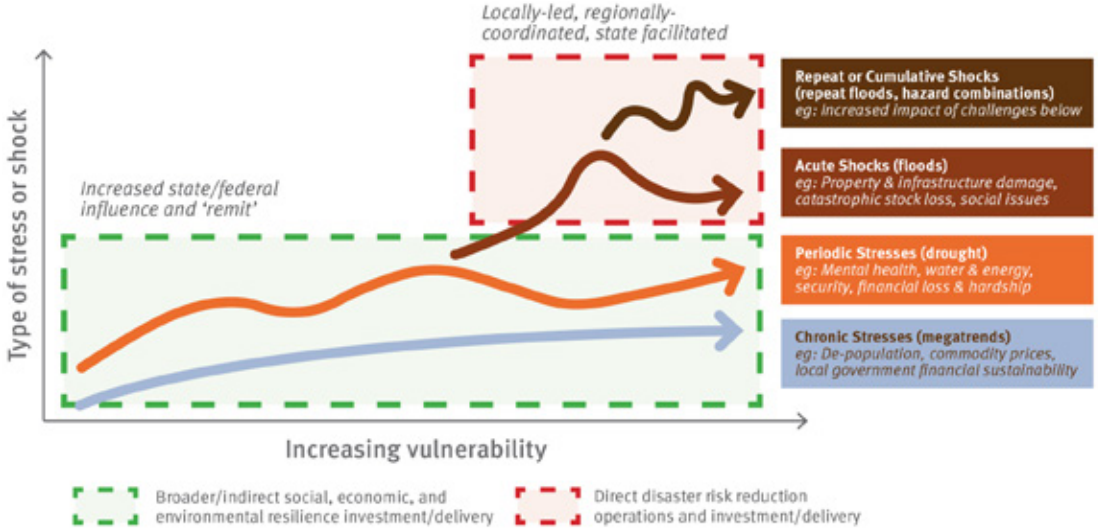



**Figure 3:** How resilience is affected by stresses and shocks, adapted from the Queensland Strategy for Disaster Resilience 2022–2027.[43]



# How to use this plan

## The purpose of the plan

The Burnett Regional Drought Resilience Plan has been developed in accordance with guidelines distributed by the Australian Government's Future Drought Fund (FDF) program. It also has been shaped by inputs from key stakeholders along with the voices and experiences of the region's people.

The purpose of this RDRP is to:

- Express the outcomes of the RDRP process and the aspirations and commitments of the region's people
- Identify and establish critical networks and partnerships to inform and support drought resilience planning and actions
- Combine the best of local and traditional knowledge with best practice data and information to make informed decisions
- Clearly identify and plan for the ongoing and future impacts of drought across the region
- Highlight pathways that the region can use to adapt to changes and build drought resilience
- Specify key actions (regional and local) that can be implemented to build drought resilience in the region.

The RDRP 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.

## Key inputs

This plan draws from and builds upon many important works. Some key plans, projects and studies used to inform the development of this plan include:

- National Disaster Risk Reduction Framework
- Profiling Australia's Vulnerability
- Queensland Strategy for Disaster Resilience 2022–2027
- Queensland Climate Adaptation Strategy
- Burnett Regional Disaster Resilience Strategy
- Wide Bay Burnett Regional Plan
- Wide Bay Burnett Climate Change Impact Summary
- Wide Bay Burnett Economic Development Strategy
- Conserving Nature- a Biodiversity Conservation Strategy for Queensland 2022 (the Biodiversity Strategy).

## 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):

- 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 plan could be considered relevant to charities, non-government organisations, not-for-profits, businesses and government agencies with an interest in responding to the effects of drought in the region.

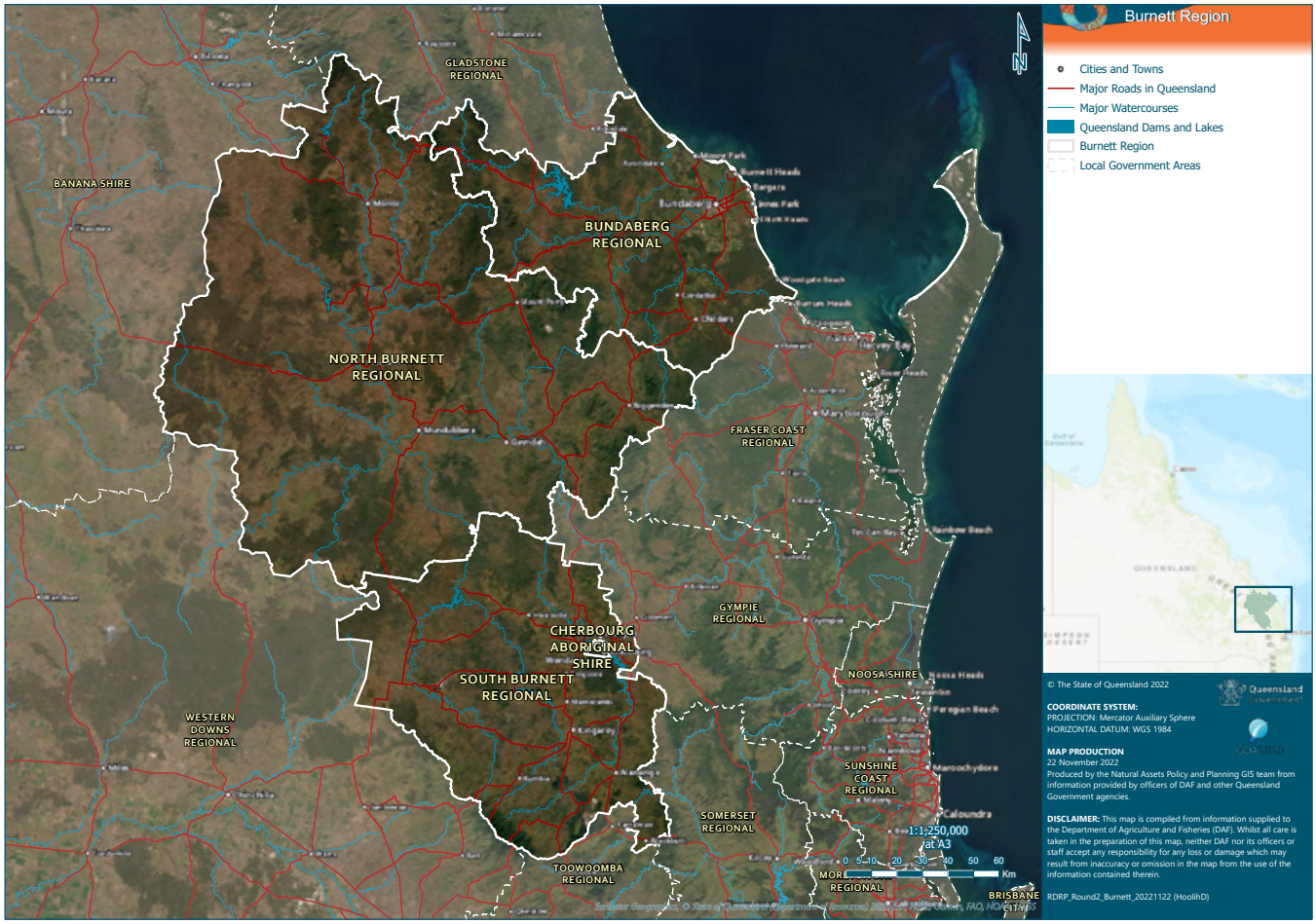
# Regional profile

The Burnett region spans an area of 34,515km$^2$ and currently is home to around 144,700 people[12]. The Burnett RDRP region (the region covered by this Regional Drought Resilience Plan) stretches from Kalpowar in the North, Bundaberg in the East, across to Mundubbera and Eidsvold to the west. The southern limits of the Burnett region reach to Benarkin (Figure 5). The Traditional Owners of the Burnett region include the Bailai, Gurang, Gooreng Gooreng, Taribelang Bunda, Wakka Wakka, Kabi, Kabi, Burunggam and Wuli-Wuli peoples. The region encompasses the four local government areas of Bundaberg, North Burnett, South Burnett and Cherbourg. Bundaberg is the major regional centre, with principal centres including Kingaroy and Gayndah.

It is a fertile area, with several major river systems including the Nogo, Stuart, Burnett, Boyne and Auburn Rivers. Indeed, it was the discovery and exploration of these rivers in the 1840s that first encouraged squatters and pastoralists there was sufficient surface water for their flocks. However, early settlers soon avoided the damp, semi-tropical coastal lands at the mouth of the Burnett River, in favour of the dryer grasslands to the west – where they established large pastoral 'runs' for sheep. Over time many of the sheep graziers converted to cattle due to the ravages of disease and speargrass. The 1860s saw more development around Bundaberg as an area for 'sub-tropical' agriculture and the beginnings of the regional sugar industry – which in turn gave birth to the world-famous Bundaberg Rum and Bundaberg Ginger Beer. The region opened up with the development of the port at Bundaberg and the rail lines to Monto and Mount Perry. To the south, in the early 1900s, the areas around Kingaroy were planted with peanuts which had been propagated from clippings brought by Chinese prospectors arriving during the goldrush. To this day the area is renowned as Australia's prime peanut growing area. In the North Burnett, the areas around Gayndah proved very suitable for citrus growing and the town is regarded as the 'Citrus capital of Queensland'.

**Image:** Bargara Beach and surrounds, Queensland.

**Figure 5:** Burnett regional map.[44]




There are several large water bodies in the region – the Paradise, Cania, Wuruma, Boondooma, Bjelke-Peterson and Fred Haigh Dams – which supply water for agriculture and industry as well as residential populations. These days, the Burnett region produces food and fibre for the local and export markets and agriculture is still a major part of the local economy (approx. 34%). Along with livestock (particularly beef and pork), major crops include sugarcane, citrus, macadamias, fodder crops, broadacre crops, and horticulture. Although overall acreage under sugarcane crops has declined and only one sugar mill remains in operation, the port at Bundaberg still has specialised facilities for both the export of refined sugar and molasses and the import of bulk molasses. Many areas of farmland previously used to grow sugarcane in the Burnett region have been converted to growing macadamia nuts over the last decade.

The region is well-serviced with transport connections and has a regional airport at Bundaberg. Major highways run north-south and also east-west, with the North Coast railway line running through the region, connecting it to Brisbane.

In the last decade there has been increased population growth, mainly due to internal migration – particularly around Bundaberg (population of 50,711), Kingaroy (population of 10,020) and Gayndah (population of 1,981). Bundaberg has seen population growth of 11% in the last decade[13] and promotes itself as "… serving the largest regional population outside South East Queensland [and] the economy is growing faster than state or national averages". However, the electorate of Hinkler (which encompasses all of the Bundaberg area) was also identified in 202014 as being the "most disadvantaged" in Australia with regard to a variety of socioeconomic indicators. Across the Wide Bay Burnett region, only 34% of adults have finished year 12, compared to 52.2% of Queenslanders. Over 26% of households earn less than $33,800 per year (Queensland, 17.5%) and the unemployment rate is 11.1%, compared to a state average of 7.3%[15].

The population growth has led to an increase in land used for residential purposes, which has taken away peri-urban land previously used for horticulture and cropping. Additionally, people in North and South Burnett talk of an influx of 'cashed-up city folks' buying up smaller acreage farms for 'lifestyle' properties where they *"…enjoy the 'farming experience' but do not necessarily run them effectively as a commercial agricultural enterprise".*

A recent government report16 revealed the major employers in 2021 (also showing percentage of overall regional employees) were Health Care and Social Assistance (17.5%); Agriculture, Forestry and Fishing (12.1%); Retail (10%), Construction (7.6%) and Manufacturing (7%). The same report shows 16.5% of employees were classified as 'Labourers' (well above the Queensland average) and 14.2% were classed as 'Professionals' (well below the Queensland average).

There are major hospitals in Bundaberg and Kingaroy, smaller hospitals in Gayndah and Cherbourg, as well as a network of health centres and clinics throughout the region. Central Queensland University (CQU) maintains a campus in Bundaberg, and TAFE has campuses in Kingaroy, Bundaberg, Cherbourg and Gayndah. The region is well serviced with primary and high schools.

**Figure 6:** Burnett region land use map.[45]

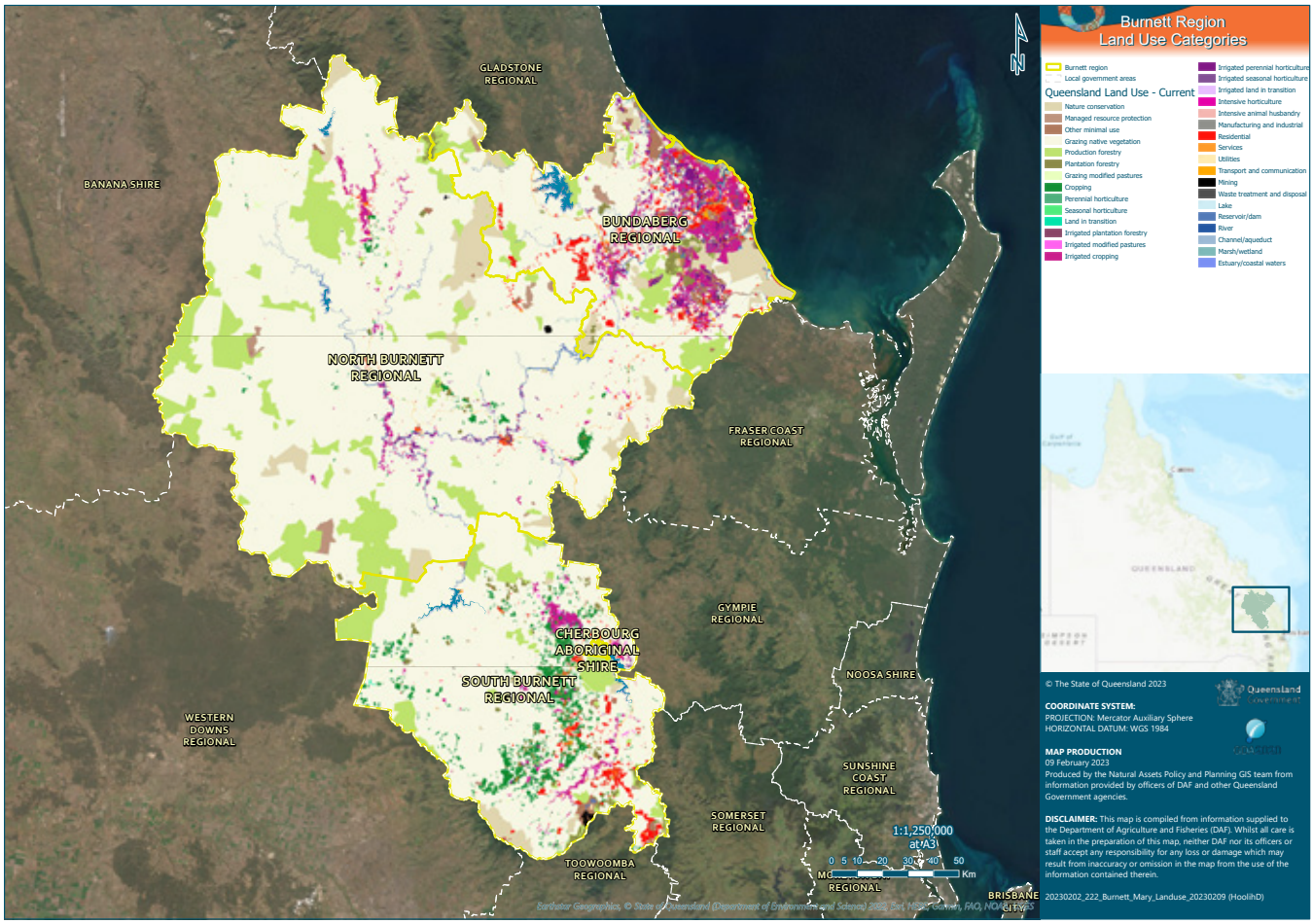


**Figure 7:** Regional socioeconomic profile.[46]

| | South Burnett | North Burnett | Cherbourg | Bundaberg | Queensland |
|---|---|---|---|---|---|
| Population (2021) | 33,325 | 10,144 | 1,212 | 100,118 | 5,217,653 |
| Australian Digital Inclusion Index | 63 | 63 | 63 | 64 | 71 |
| Projected population as at June 2041 | 37,107 | 10,562 | 1,403 | 119,730 | 7,161,661 |
| Unemployment rate (2016) | 7.4% | 5.3% | 51.4% | 6.2% | 4.2% |
| Median age of residents (2020) | 44 | 47 | 21.7 | 46 | 38.4 |
| SEIFA 2016 Socio Economic Index of Social Disadvantage (mean score is 1,000) | 908 | 916 | 404 | 925 | – |
| % Aboriginal or Torres Strait Islander Peoples (2016) | 5.5% | 6.5% | 96.4% | 4.5% | 4.6% |
| Number of local businesses (2020) | 3,175 | 1,717 | 4 | 6,622 | 460,669 |
| % people who speak a language other than English at home (2016) | 2.9% | 5.5% | 3.9% | 5.2% | 13.2% |
| Population that need assistance due to disability (2016) | 9.1% | 8.0% | 4.1% | 9.6% | 6% |
| Median total personal income $/year (2019) | 44,517 | 29,539 | 21,724 | 41,789 | 50,298 |
| Protected area – parks, forests, reserves area (km²) (2020) | 168 | 834 | 0 | 587 | 15,061,088 |

**Image:** Carnarvon Gorge National Park, Queensland. *Source: : © Peter Boer, 2013 (CC BY licence).*

# History of drought in this region

As with most of Australia, there is a strong link between water – the waterways, waterholes and the patterns of rain and flood – in this region and the cultural practices of the Aboriginal/First Nations people. Connolly, Williams and Williams[17] describe the importance of having sufficient 'cultural water' in the following statement:

***"Water is integral to Aboriginal culture and belief systems. We define cultural water as having four distinctive components, that are associated with (1) healthy rivers, (2) resource availability, such as bush tucker and medicine, (3) cultural practices that form custom and belief systems, and (4) the contemporary economic and social requirements of Aboriginal people, such as formal water allocation for economic advancement."***

First Nations oral histories talk of drought as part of seasonal weather cycles in the Burnett region. However, early accounts by European settlers talk of the severe drought of the 1860s and the effect on pastoral stocks in the western areas. In particular, they record how starving mobs of sheep from outside the region came "*from the outside country, [ searching for food] these sheep brought the speargrass seeds on to the Burnett and with a good season or two it spread.*". Similar stories of hardship from the so-called 'Federation Drought' (1895–1902) describe heavy losses of cattle and sheep in the western parts of the Burnett. However, the most damaging impacts came from weather patterns that are now often typical for the region – periods of extreme drought followed quickly by intense and heavy rains and flooding.

The Burnett region exemplifies Dorothea Mackellar's famous poem stanza 'Of drought and flooding rains.' In the past decade, the region has endured seven severe weather/flooding events, three drought declarations, several bushfires as well as being preceded by eight years of drought conditions[18].

The NRM & Climate Resilience Plan 2030[19] states for the last 30 years, the observed trends provided by the Bureau of Meteorology for the Burnett and Mary regions are:

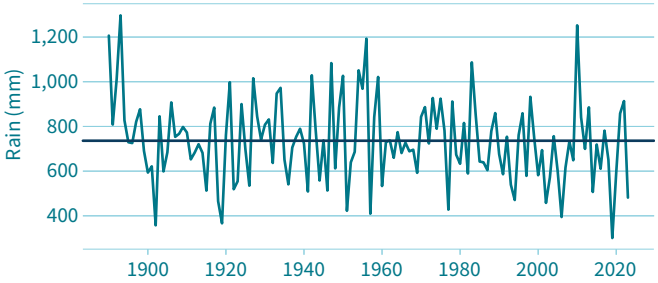
- Annual rainfall has been relatively stable.
- Dry years have occurred 13 times and wet years five times.
- Rainfall has decreased in the summer months on the coast.
- Rainfall has decreased in the winter, spring and summer months in the inland parts of the region.
- Wet season rainfall is reliable; dry season rainfall is unreliable.
- On average, heavy rain events have occurred twice a year.
- There have been more hot days, with more consecutive days above 35°C.
- Severe heat stress days for livestock are increasing.

Some of these observed trends are supported in long term statistics generated by the Long Paddock decision-support tool (Figure 8).

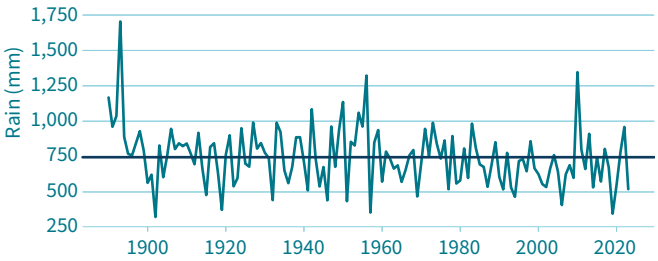
An analysis of the above rainfall trends for the LGAs indicate much of the annual rainfall since 1990 sits below the long term (1888–2021) average. For the same period, maximum temperatures are trending upwards. The 2018/19 annual rainfall was equivalent or lower than that for the infamous 1901/02 Centenary Drought which is considered the nation's worst drought. In comparison, the average 12 month rainfall anomaly for all of Queensland was approximately -30% and the Centenary Drought period was -75%. This would indicate the 2018/19 period of drought was more severe for the Burnett region compared to much of the state for that same period.

**Figure 8:** Annual total rainfall and maximum temperatures 1900 to 2020.[47]

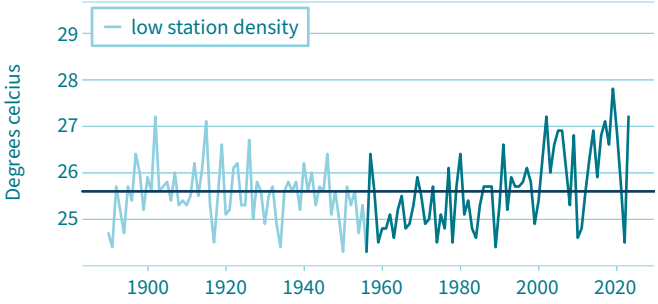
**South Burnett LGA** Annual total rainfall (avg = 736.0mm)



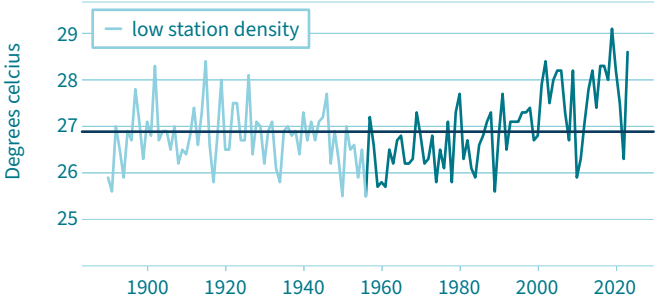

**North Burnett LGA** Annual total rainfall (avg = 745.5mm)



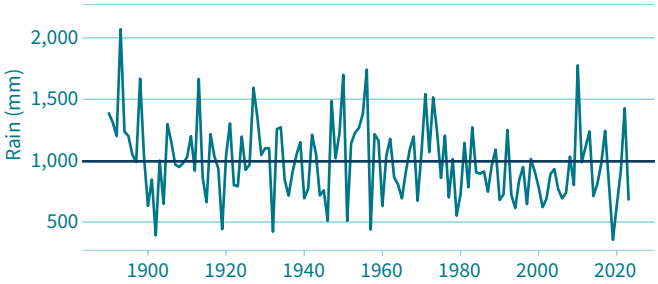

**South Burnett LGA** Annual maximum temperature (avg = 25.6°C)



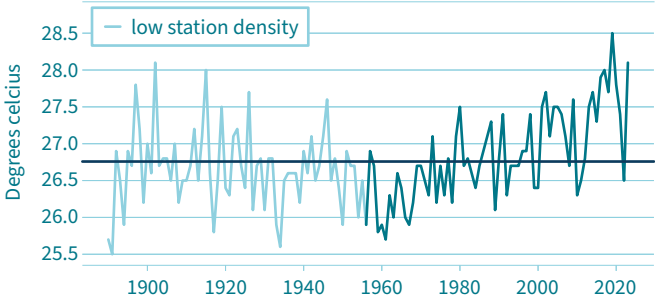

**North Burnett LGA** Annual maximum temperature (avg = 26.9°C)




**Bundaberg LGA** Annual total rainfall (avg = 994.4mm)




**Bundaberg LGA** Annual maximum temperature (avg = 26.8°C)



The map below depicts Australia's climate variability. The Burnett region's rainfall has relatively low variability compared to other regions of Queensland. However, the drought declaration map indicates there is variability of annual rainfall across the region. Areas of the North Burnett LGA have spent 40–50% of the time since 1964 drought declared, while the coastal part of the region has spent 10–20% drought declared.

***"Weather patterns have changed. The droughts are getting harder and longer, and the wets are getting wetter. We get heavier rainfall over shorter periods."***

**– Producer**

The region is highly susceptible to flash droughts that typically last for as little as a month and as long as six months. Figure 12 shows the climatic conditions, and soil and plant responses to those conditions, which cause a flash drought. Blue arrows from the surface indicate evapotranspiration and the red arrows indicate heat. The larger the arrow, the bigger the flux from the surface to the lower atmosphere.

Figure 12 shows the climatic conditions and soil and plant responses to those conditions which cause a flash drought. Blue arrows from the surface indicate evapotranspiration and the red arrows indicate heat. The larger the arrow the bigger the flux from the surface to the lower atmosphere.

**Figure 9:** Annual Rainfall Variation.[48]

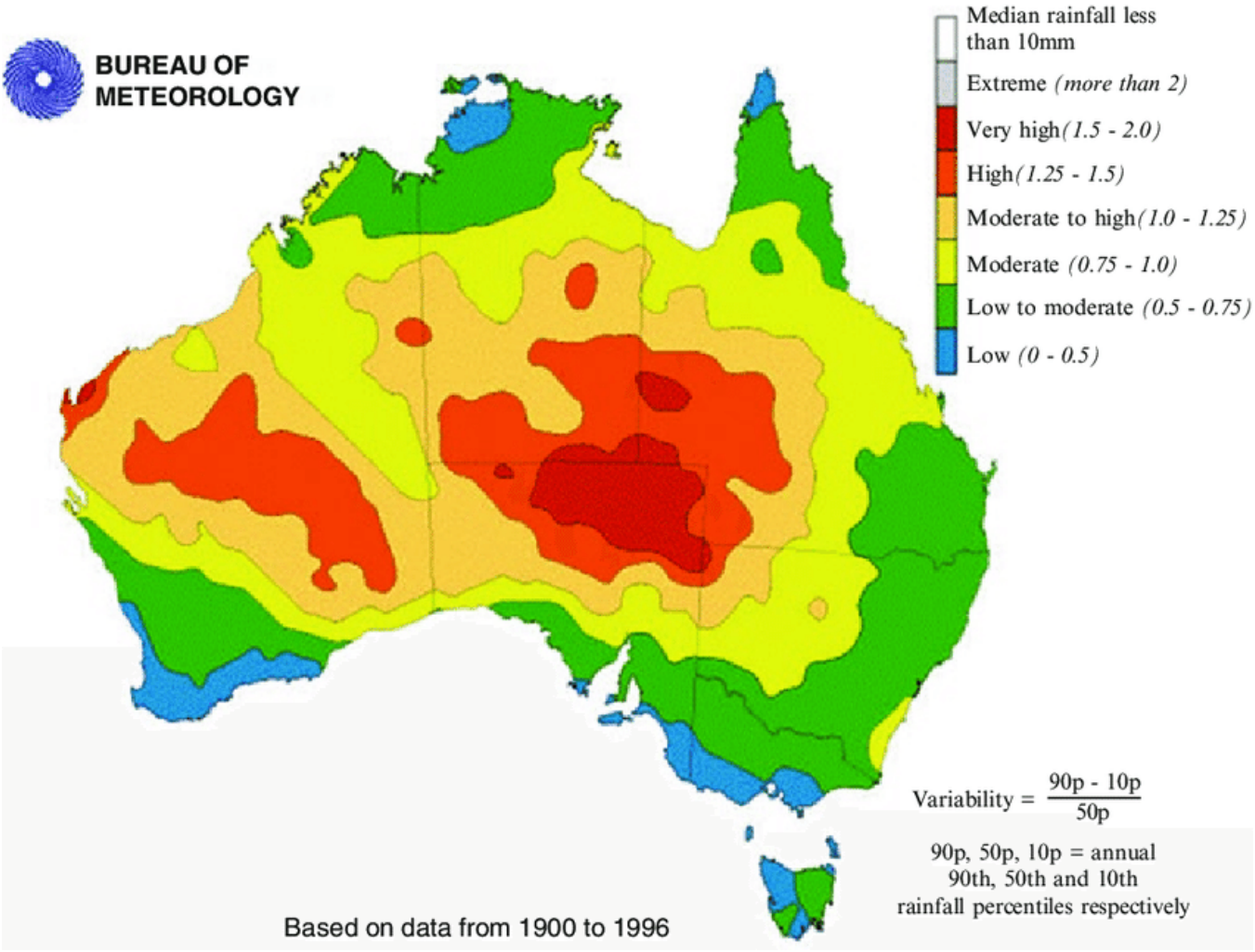


**Figure 10:** Percentage of time drought declared since 1964 as at 4 March 2022.[49]

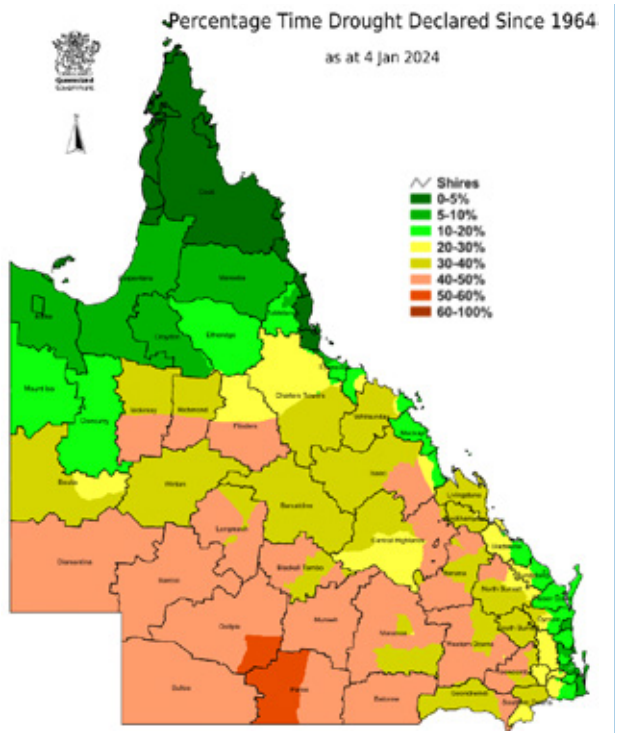



**Figure 11:** Annual frequency of flash droughts.[50]

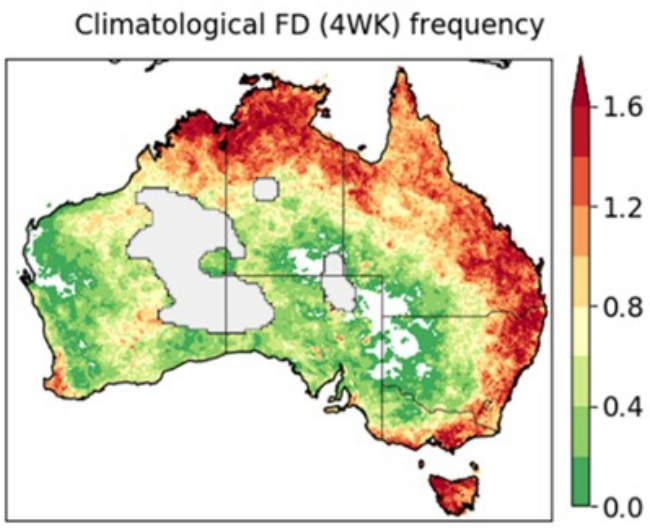
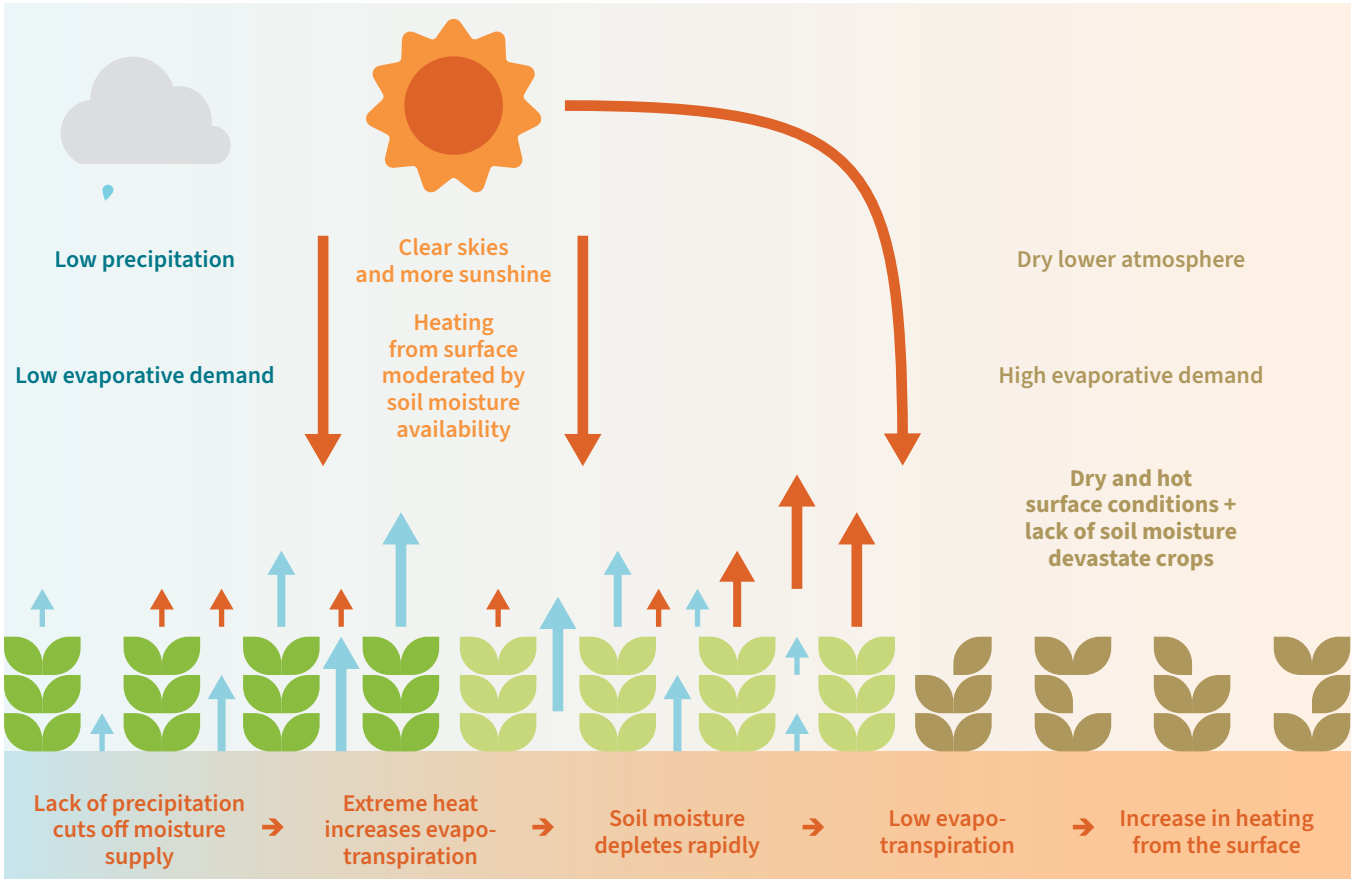



**Figure 12:** Climatic conditions and soil and plant responses which cause flash droughts.[51]



# Past impacts of drought in this region

## People, culture and community

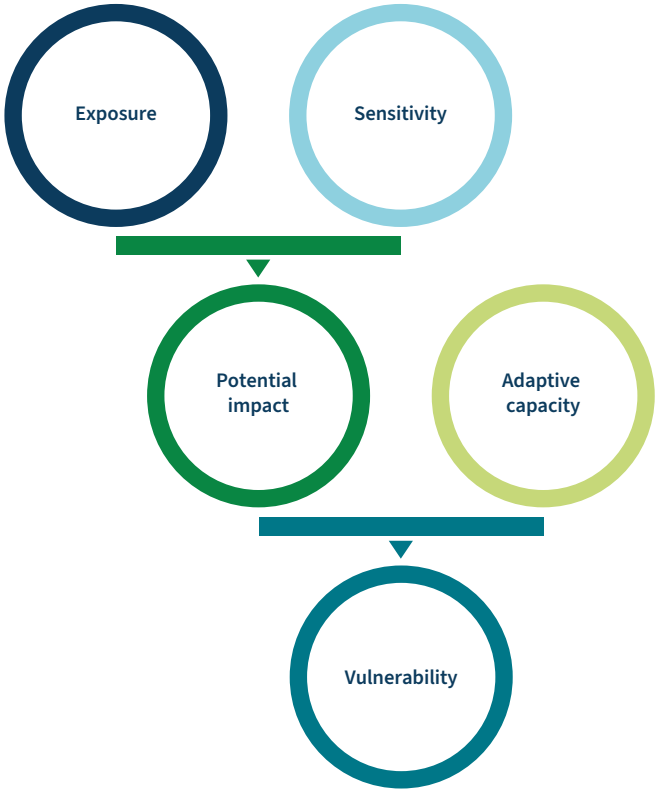
Having strong, 'healthy' and 'vital' communities is central to building drought resilience in the Burnett region. The strength and health of the economy and landscape is intrinsically linked to that of the people and their communities. Community feedback, government reports and statistical evidence all point to a decline in the health and vitality of people and their communities during times of drought.

In a 2012 report to the Murray-Darling Basin Authority, ABARES proposed the following framework as a useful way to understand community drought vulnerability and drought resilience.

The 'exposure' of a community is defined as:

***"The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected" (IPCC, 2022). Their 'sensitivity' relates to their dependence on the factor that is changing (e.g. rainfall or water supplies) – these combined determine the level of 'impact'. However, the community's 'adaptive capacity' or 'resilience' can mitigate some of the impacts and hence reduce their level of 'vulnerability'.***

**Figure 13:** Drought Vulnerability Framework.[52]



Community feedback, government reports and statistical evidence all suggest the 'vitality' of the community is a critical factor in their capacity for local drought resilience. While there is no definitive list of the factors contributing to community vitality, there is general consensus it includes such indicators as:

- growth or decline in population
- availability or diversity of local employment
- 'connectedness' and participation in community groups/events
- access to knowledge, ideas and advice
- evidence of community 'pride'
- community health (physical and mental)
- local investment
- availability of affordable housing
- 'liveability' and 'local amenity'
- community governance and leadership
- cultural identity
- subjective levels of wellbeing
- levels of security, crime and conflict.

The McConnell Foundation[20] summarises community vitality as: *"Creative Placemaking; Fostering 'Local'; Future Readiness; Active Lifestyles and Civic Engagement.*"

All these factors affect the 'adaptive capacity' of communities, and consequently, their drought resilience. Many of these factors were highlighted through a review of outside 'expert' knowledge (data and reports) and through engagement in the region (interviews, meetings and comments). Some may be considered 'chronic stresses' that increase the impacts of drought, and in turn, there is clear evidence drought has had a negative effect on many of these factors. Therefore, strong action should be taken to address factors and build drought resilience for the future.

***"No structures in place for drought – governance structure, set of objectives, for group with mandate to influence field would be worth investigating. Clarity of structure and purpose for people involved – impetus if people see the need."***

**– Primary Health Network (PHN) Manager, Bundaberg**

***"Biggest impact is mood. When it goes on for more than a couple of years it impacts the general mood – very negative. People who normally cope quite well lose the ability to bounce back."***

**– CSO Manager**

Examining five sets of the results from the Regional Wellbeing Survey[21], shows a noticeable decline in the overall (self-reported) 'wellbeing' score for the Wide Bay/Burnett region during the period 2017–2019. This was the most recent period of drought when rainfalls in the region were deemed 'lowest of record'[22].

A closer examination reveals respondents rated the following local factors lower during the drought:

- Community Economic Wellbeing
  (e.g. "Local businesses are doing well")
- Community Wellbeing
  (e.g. "My community is a great place to live")
- Access to and availability of, support services
  (particularly mental health services)
- State of 'Natural Capital'
  (including man-made and natural landscapes).

However, in most other aspects of wellbeing, the results were in line with years of higher rainfall.

***"Last drought I had never felt so alone. I didn't realise that others felt the same until I came to this group. Even though everyone else is an irrigator they still understood and had been in the same place."***

**– Farmer Group member**

## *"Current workforce shortages are affecting people's ability to collaborate/ volunteer for the community good."*

**– PHN Manager, Bundaberg**

The Centre for Rural and Remote Mental Health Queensland[23] reported in 2008 *"Due to the reliance on primary industries in rural and remote areas, climate variability is the factor that has the greatest influence on the stress levels of individuals in rural and remote areas"*. Drought exacerbates chronic stresses and underlying issues such as:

- legal and financial problems
- medical and health problems
- alcohol and substance abuse
- isolation and social withdrawal
- breakdown of relationships and in the worse cases, self-harm and suicide.

These individual stresses, in turn also influence (and are influenced by) the collective wellbeing effects on communities and landscapes – in effect, drought can create a 'vicious cycle' of stress and decline in mental health. Nevertheless, amongst mental health experts and practitioners[24], it has also been discussed that 'de-stigmatising' mental health issues and increased availability of services can have the effect of increasing the number of people self-identifying with mental health issues and seeking services.

The Burnett Catchment Care Association carried out a community needs analysis, targeting building agricultural resilience in the North Burnett in response to natural disasters (flood, droughts and fire)[25]. They established that social needs were not given enough emphasis, and some producers interviewed identified a need for more one-on-one support rather than group workshops. The analysis identified a need to focus on community connection and mental health and wellbeing.

## *"People were really struggling… suicide rates were really high."*

**– Grazier**

The most recent Local Area Needs Assessment (2022) for the region, conducted by Queensland Health[26] notes "…the rates of suicide in Wide Bay were higher than the state average (15 per 100,000) in every SA2" and "…the areas where residents are most at risk of suicide are Agnes Water –Miriam Vale, Gin Gin, Monto–Eidsvold, North Burnett and Gayndah–Mundubbera".

When examining the reported figures for Death by Suicide for the Burnett region – excluding the Bundaberg area – there is an increase from 2014–2018 (26.2 per 100,000 population) to 2017–2021 (30.4 per 100,000 population). However, while the second reporting period contains the end of the last period of severe drought, the peak in suicide rates was relatively short-lived and concurrently was felt all around the country – perhaps due to the onset of COVID-19. While there is continued debate about the proven causal links specifically between drought and levels of suicide, there is no debate in the Burnett region that many people's recollections and personal experiences highlight a collective perception – drought intensifies stress and triggers mental health problems, which in turn leads to an increase in suicides.

## *"People are much happier using a mental health/addiction service based in their region (even on the phone). People don't want to come into the office and be seen but more able to ring someone and know that they are from the region and understand the local context."*

**– Farmer, health support organisation**

Overall, the population of the Burnett region has been steadily increasing, with much of the growth being centred on the coastal areas around Bundaberg. Interestingly, when plotted alongside Regional Annual Rainfall, the North Burnett population numbers over the last decade appear to be most influenced by prevailing seasonal conditions, with Bundaberg least influenced by prevailing seasonal conditions. The direct correlation between (lack of) rainfall and population decline was challenged by stakeholders in other parts of the region and they suggested many other factors were at play.

Nevertheless, records form our engagements highlight anecdotal evidence of departure from the North and South Burnett of many agricultural contract workers (both Australian and overseas) during the intense periods (2018–2020) at the end of the last drought. While these population groups did not appear to return in large numbers after the drought broke, the more populated areas around Kingaroy and Bundaberg saw numbers of new (and relatively wealthy) internal migrants – often relatively wealthy – leaving southern cities and re-locating in the Burnett region during the COVID-19 pandemic.

**Figure 14:** Annual population change and regional annual rainfall.[53]

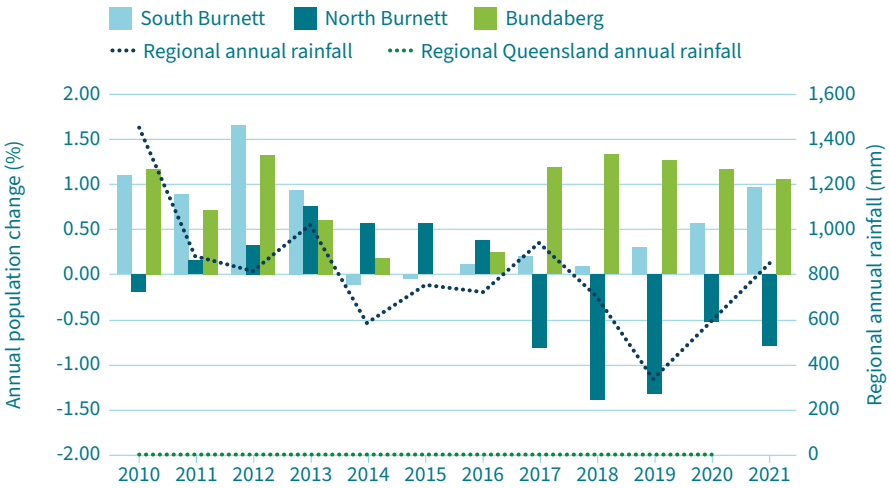
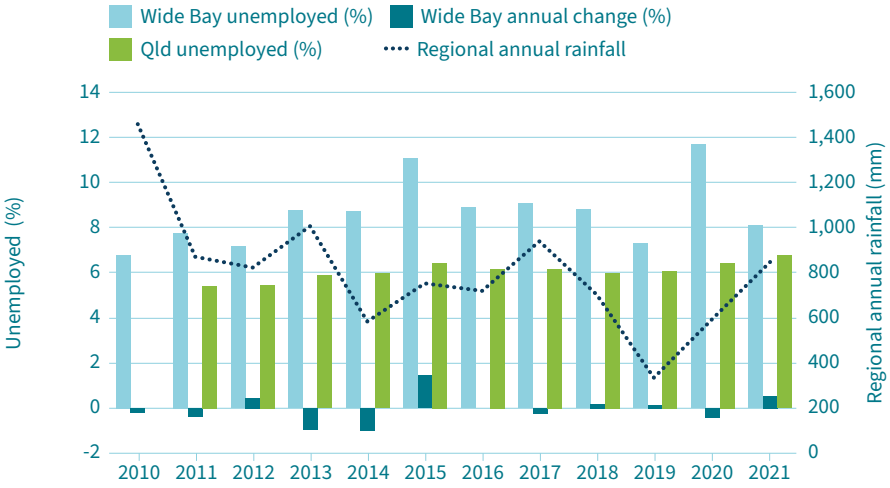



**Figure 15:** Wide Bay region employment and regional annual rainfall.[54]




Particularly in South Burnett, this saw a noticeable number of smaller agricultural properties transformed into 'lifestyle farms' where the new owners (so-called 'tree-changers') no longer depended on agricultural production for their income, and "enjoyed the rural lifestyle" without the need to run the property as a commercial enterprise. According to some stakeholders, these 'blockies' are problematic as they *"…have no idea how to run a farm"* and *"… cause all sorts of problems"* like spreading ticks through *"letting their infected cattle wander all over the place"*. However, other community members say they are bringing new ideas, knowledge and perspectives into the region, and developing value-added products on existing farming land. Both local community networks/groups[27] and some government agencies have now targeted 'blockies' for training and education programs in recent years.

At 11.1% (2022) the Wide Bay/Burnett unemployment rate is significantly higher than the state average of 7.3%. This aligns with feedback received during the Bundaberg stakeholder workshop which noted some areas of the Bundaberg LGA have the lowest socioeconomic level in the nation. When viewed in line with the rainfall patterns, it is possible to note a correlation between decreased rainfall and a slight increase in unemployment in the 2016–2019 period of intense drought. Again, comments from engagement interviews suggested this may be due to a reduction in contracted agricultural labour jobs, and the similar reduction in retail positions in towns and regional centres at that time.

# Economy

The Gross Regional Product (GRP) of the Wide Bay RDA area for the year ending June 2022 is $14,893 million. Since 2010, the region has experienced seven years where the annual GDP grew, and five years where the annual GDP fell. The biggest decline was in the 2019/20 year where a decline of 2.5% on the previous year's GDP was experienced, correlating with the end of the 2016–2019 drought period.

For the 2021/22 period, construction, agriculture (including forestry and fishing) and manufacturing had the largest output – accounting for 47.2% of the regions total output. The regions agricultural output is 16% of the total output, whereas agriculture accounts for 5% of Queensland's total output for the same period.

The Burnett region produces 8% of Queensland's Gross Value of (primary) Production.

The agricultural output percentage of total output for the North Burnett shire is significantly greater than the region as whole. For the 2021/22 year, the agricultural output percentage was 49.5% of the shires total output of $1,749 million. The total output for the 2019/20 year (the severest period of the drought) was $412.9 million less than the 2021/22 year of which $338.1 million (81.9%) of the difference was contributed to a decline in agricultural output. It is clear the reliance on agriculture for the North Burnett area makes its economy particularly vulnerable to factors which influence agricultural output, namely commodity prices and seasonal conditions. The vulnerability of the Bundaberg, South Burnett and Cherbourg shires are less vulnerable, with agricultural output (of total output for the 2021/22 year) being 21.1%, 16% and 24.1%, respectively.

**Figure 16:** Wide Bay Burnett region output by industry.[55]

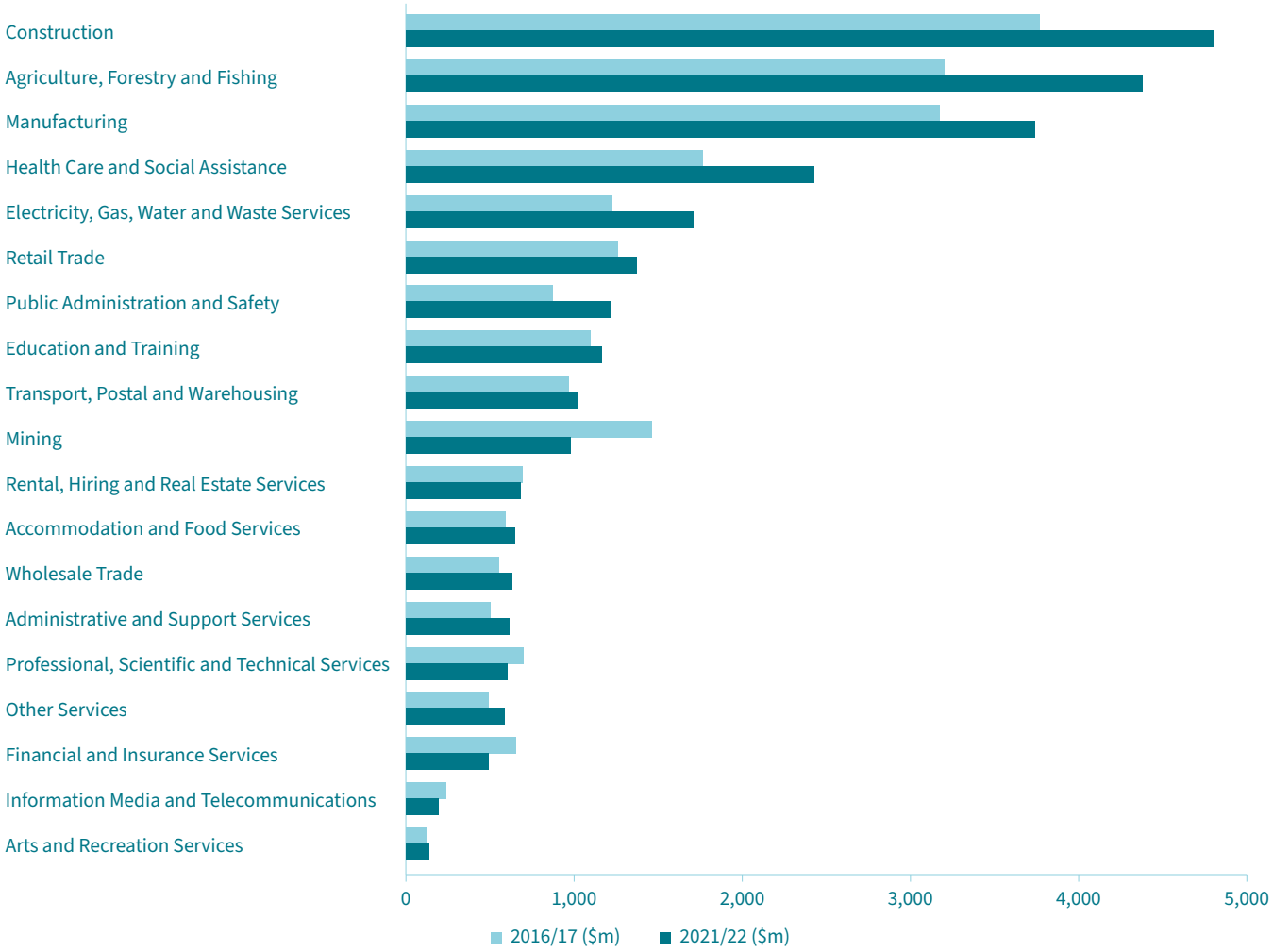
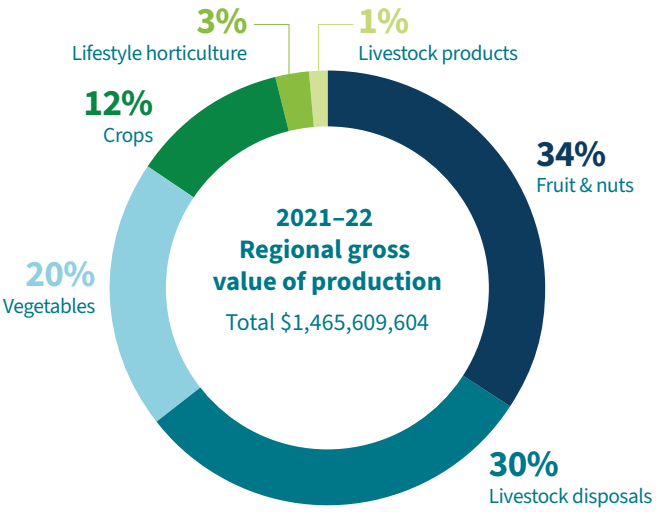


**Figure 17:** Regional gross value of production, 2021–22.[56]




*"In smaller ag-focused communities is the closure of small businesses – gift shop & furniture shops that sell the 'nice to have' items rather than essentials – now there are no furniture shops in the north Burnett. That has a flow on impact – empty shops mean others don't open. Those few shops shut means people start to shop elsewhere which has a cyclical impact – bypassing local town to go to the bigger town."*

**– Local producer**

**Figure 18:** Forecasts for agricultural production (excluding forestry and fisheries) and Australian Bureau of Statistics data at the Statistical Area 2 level to estimate the gross value of production (GVP) for Queensland's regions.[57]

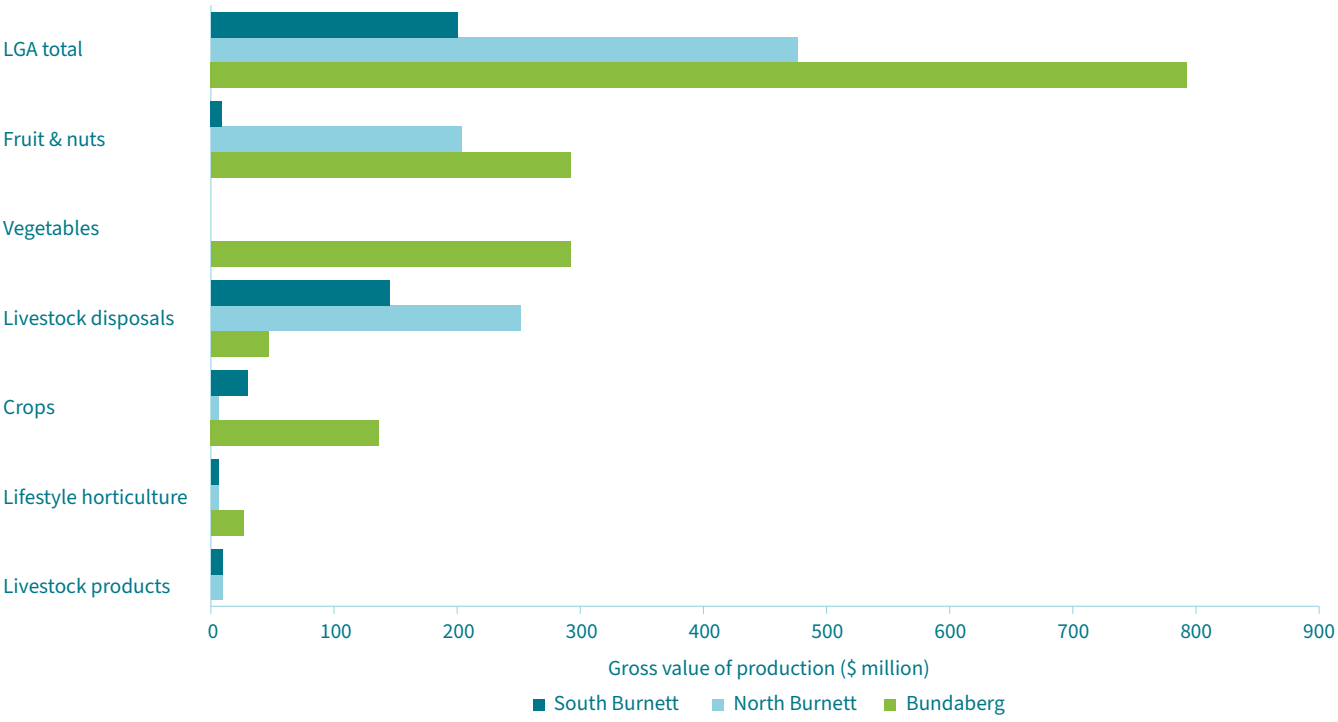
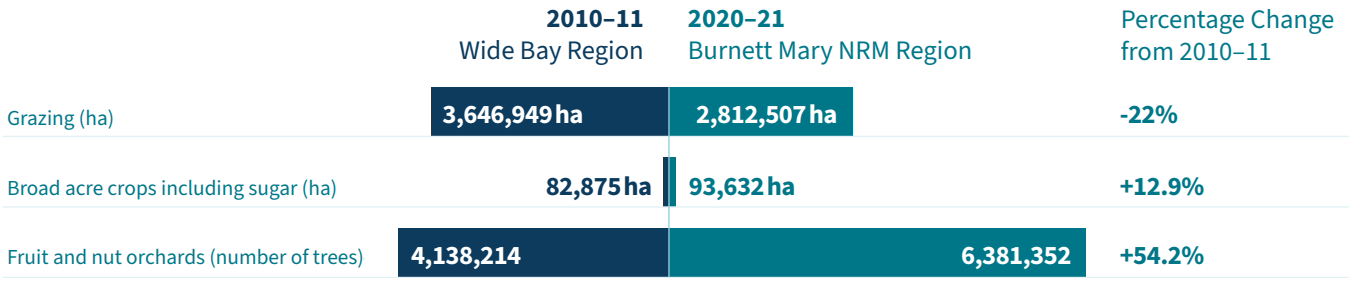


**Figure 19:** Livestock disposals and fruit and nut industries contribute the greatest portion to the region's GVP.[58]




Livestock disposals and fruit and nut industries contribute the greatest portion to the region's GVP. Figure 20 and Figure 21 represent the total regional and agricultural output for the 2010/11 – 2021/22 period mapped against the average regional rainfall. When viewing the annual variation for the total output (Figure 20) it does not appear to be significantly affected by the average regional annual rainfall. Although, seasonal weather conditions may have had some influence on the total regional output. When viewing the agricultural output however (Figure 21), declines in output are noticeable towards the end of the last drought in 2016–2019.

***"People had to make decisions about their future livelihood – they were forced sell for next to nothing or pray that things would get better and hold on."***

**– Manager, Salvation Army**

Despite the perceptions and comments from some local stakeholders, in reality commodity prices were high for sugar and beef – it would be unlikely for people to have to "sell for next to nothing". However, some comments from local saleyards suggested some graziers left de-stocking "way too late" and brought in feeble and underweight stock that were "practically worthless". Reuters[28] reported export wheat prices were low due to a market oversupply from South America. Figure 22 indicates commodity prices for sugar, wheat and beef for the last decade had little correlation to drought or seasonal conditions for the same period. Given the large amount of production destined for export, it is doubtful any shortage of Australian production would be likely to force up international commodity prices due to scarcity.

In 2021, ABARES conducted a nationwide survey of farm practices related to natural resource management (NRM) and drought resilience and preparedness. The survey included questions on management practices relating to farm financial diversification, farm planning and management, and the use of NRM and other farming practices. From 478 farms surveyed in Queensland (including from the region) the results indicate recent drought has driven financial and land management practice change in many farming enterprises. Many farms and properties have been forced to decrease their reliance on a single source of agricultural income through the diversification of income streams. This is being achieved through seeking off-farm income as well as introducing a wider range of agricultural activities on farm.

The ABARES 2021 survey found:

- Over the last 3 years, an estimated 34% of farms diversified their agricultural enterprises to increase their resilience to drought, while 38% increased their non-farm income.
- Around 64% of farms had some non-farm income, on average over the last 3 years. Of those farms, the average proportion of household income from non-farm sources was 41%, making many farms well placed to deal with a short-term downturn in farm income.
- Approximately 4% of farms received payments for environmental services.
- However, only an estimated 36% of farmers had a written farm plan with business objectives. Of those plans 79% included drought strategies and 88% included other farm risks.

Engagement in the Burnett region captured several relevant comments regarding the importance of off-farm income, and in particular, the economic gains brought to the region from the power stations and mines. Of note in this region is the number of smaller properties, especially those historically created because of 1860s 'Closer Settlement' legislation. Owners of these properties often noted off-farm income was an essential part of their "recipe for survival".

**Figure 20:** Annual comparison of total output and regional output.[59]

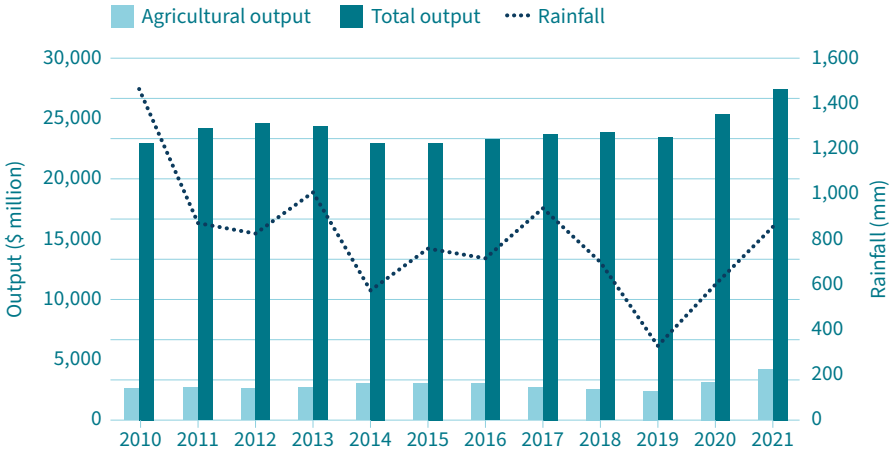



**Figure 21:** Annual agricultural percentage of total regional output.[60]

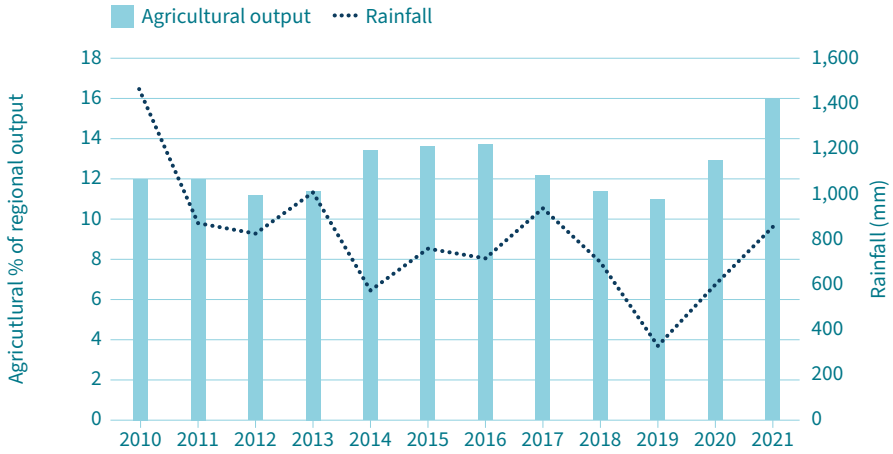
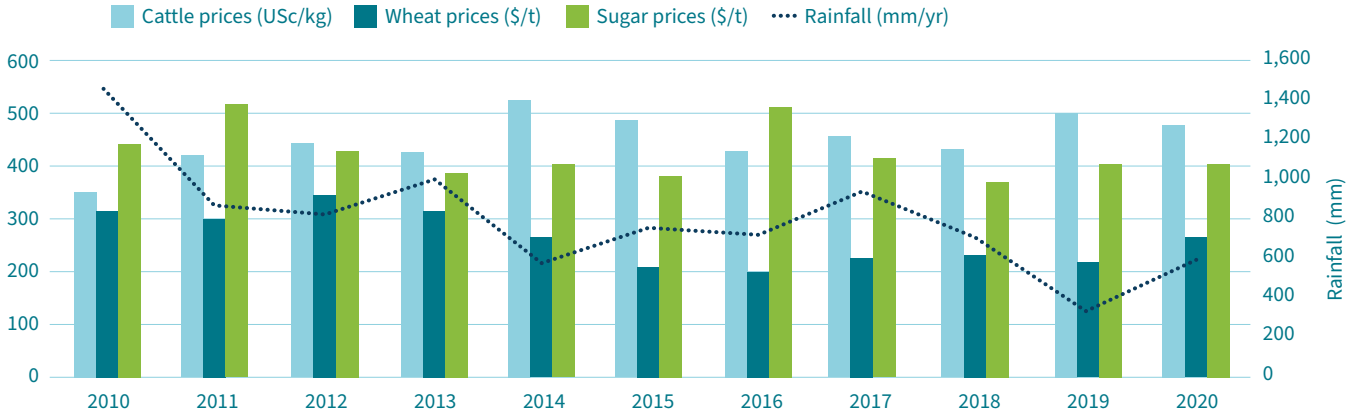



**Figure 22:** Commodity prices.[61]



*"We get about 70% of our income from my job as a diesel fitter… if we didn't have that we wouldn't be able to operate our farm the way we do."*

**– Small-holding Grazier**

*[Tarong Power station impact] "It created many more employment opportunities – the mine provided farmers with off farm income – and the shift work suited them. In droughts it keeps farmers on farms. It supported growth of local businesses in town – created extra off farm income opportunity for farmers."*

**– Local Accountant**

Several stakeholder groups complained how many government support and/or relief schemes, especially those under the State and Commonwealth 'Drought Relief' programs, effectively punished them for having "too much" off-farm income.

**Figure 23:** Farm business profit for the Curtis to Morton ABARES region.[62]

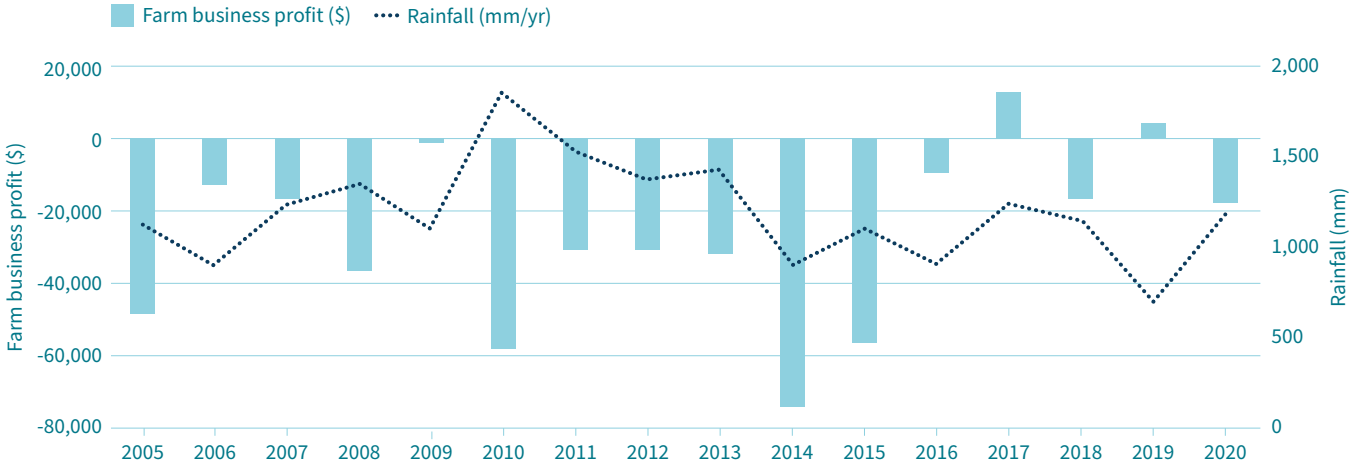
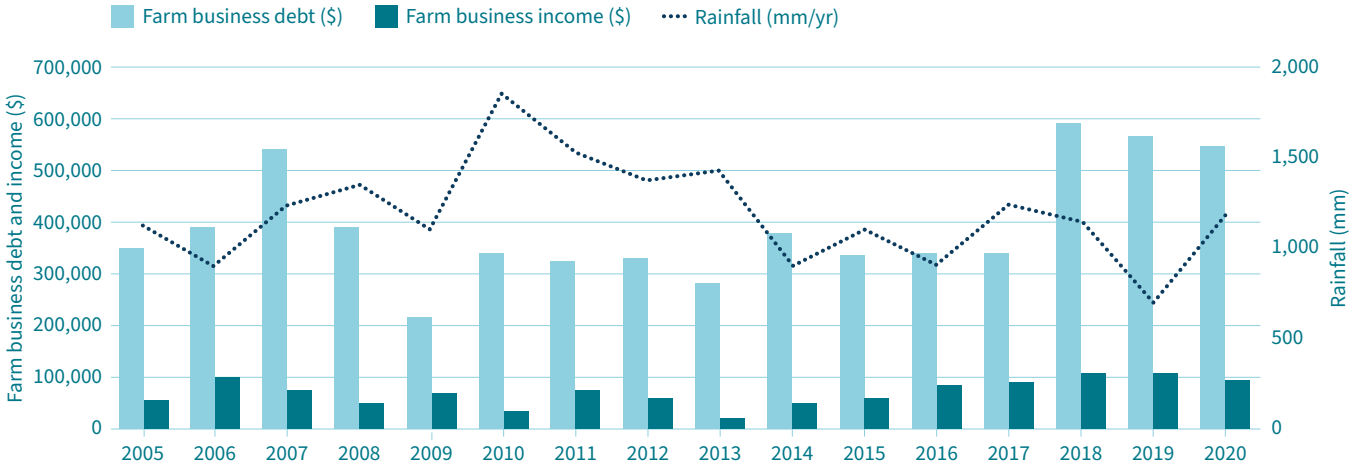



**Figure 24:** Farm business debt and income for the Curtis to Morton ABARES region.[63]



*"They punish the people who have been proactive…we set ourselves up to be resilient to drought by investing in rental properties over the years and this has meant that we are never eligible for any drought funding because we earn more than 50% of our income off farm. We both work on the farm. We don't have off-farm jobs – this is our job. It seems the least prepared people get access to all the help and this is wrong."*

**– Grazier, Burnett**

*"Most farms around here have off farm income which is a blessing and a curse. It impacts your ability to get grants. It means that one partner isn't working in the business so one less set of hands, and the administrative load of compliance for example is exacerbated. Bigger places have the capacity to manage it much easier than our smaller operations."*

**– Grazier, Burnett**

While the patterns of farm profit do not directly correlate to high or low rainfall periods, the ABARES data highlights a number of concerning issues for farms in the Morton to Curtis region (which encompasses the Burnett region):

(a) for only two years from 2005–2020 were farms in the region recorded as making a profit
(b) farms in the region consistently hold high levels of debt compared to their reported income
(c) farms typically take on more debt to 'get through' periods of drought and this carries on for some years after the drought may have broken.

Given the proven (and increasing) variability of intense weather in the region, droughts may 'break' with periods of heavy rain and flooding – which only further exacerbates the damage done to landscape, crops and livestock (and communities) during the drought. This pattern significantly weakens peoples adaptive capacity to 'bounce back' after the drought.

*"In this area the impact of drought has been exacerbated. It has been cumulative the things that have knocked people around. Not just the droughts but the floods too. These combined have meant that a lot of placed around here have cash issues and will be going into this next drought without much of a buffer."*

**– Rural Financial Counsellor**

The BCCA Community Needs Analysis (2018) highlighted a number of areas where capacity needed to be strengthened in relation to economic and business resilience:

- Business management and financial literacy
- Risk management and decision making
- Communication and relationship building
- Insurance reform (non-conventional and more affordable options available).

The size of properties/farms in relation to their viability was mentioned by several producers and business support professionals. Many commented that often farms were too small to allow for long term viability and off-farm income was essential to keeping the farm. However, the Western Burnett Agricultural Strategy[29] states while larger farms may allow increased turnover, understanding key business factors such as cost-of-production and making sound business decisions around these factors would have much greater influence on profitability, rather than just economies of scale.

The Western Burnett Agricultural Strategy identified the major barriers to farmers making improvements to their operations were a lack of capital funds, unfavourable seasonal conditions and government regulations. Producers prioritised the following actions as having the greatest influence on the profitability of agricultural enterprises in the Burnett:

- reliability of weather forecasts
- electricity costs
- input costs
- scale of their enterprise
- water accessibility
- diversification.

## Landscape and natural environment

*"Traditional owners still use the waterways for subsistence, education, general life – fish for crabs, mullet, fish. Spend time in river to reconnect with spirt and teach young people – dry rivers have spiritual & mental health impacts. Waterholes dry up. Drought impacts their medicine plants and other native plants they eat. When [First Nations] people get to their country and see it in a degraded state it has a great impact on them".*

**– NRM Manager**

*"Old people would have story around it- there are indicators on country for the next season coming up and when we need to burn. The fire timing would be around the emu and the possum…when the young possums are able to move and the emu eggs have hatched - then we're able to burn. We traditionally burned the country to produce the most food for the mob. Drought applies much more pressure to country – it reduces windows of when you can act. We need to be agile enough that we can act in small windows -eg. a cool burn can happen when there's a heavy dew. When we are too inactive, we end up with heaps of fuel … and that equals heaps of bushfire risk."*

**– Aboriginal Elder**

Theses first two comments highlight the ancient and enduring relationship First Nations people have to country. Traditional owners talk of the multi-faceted impacts of drought on the landscape of the Burnett region and the effect it still has on their communities.

So too, do many of the people living and working on the land. Sometimes their stories contain dramatic images, but sometimes the changes are subtle and happen over time.

*"The Region's grazing industry comprises mostly small-scale operations. The local industry has been seriously impacted by drought and by an observed shortening of the growing season, that may reflect a shift in the regional climate regime in response to climate change."*

**– BMRG NRM & Climate Resilience Plan, 2023**

*"When the rains finally came [at the end of the last drought] parts of our land were to damaged to take it up…we had waterfalls and floods all over the place. In some parts we lost nearly all of what topsoil we had left in the first rains."*

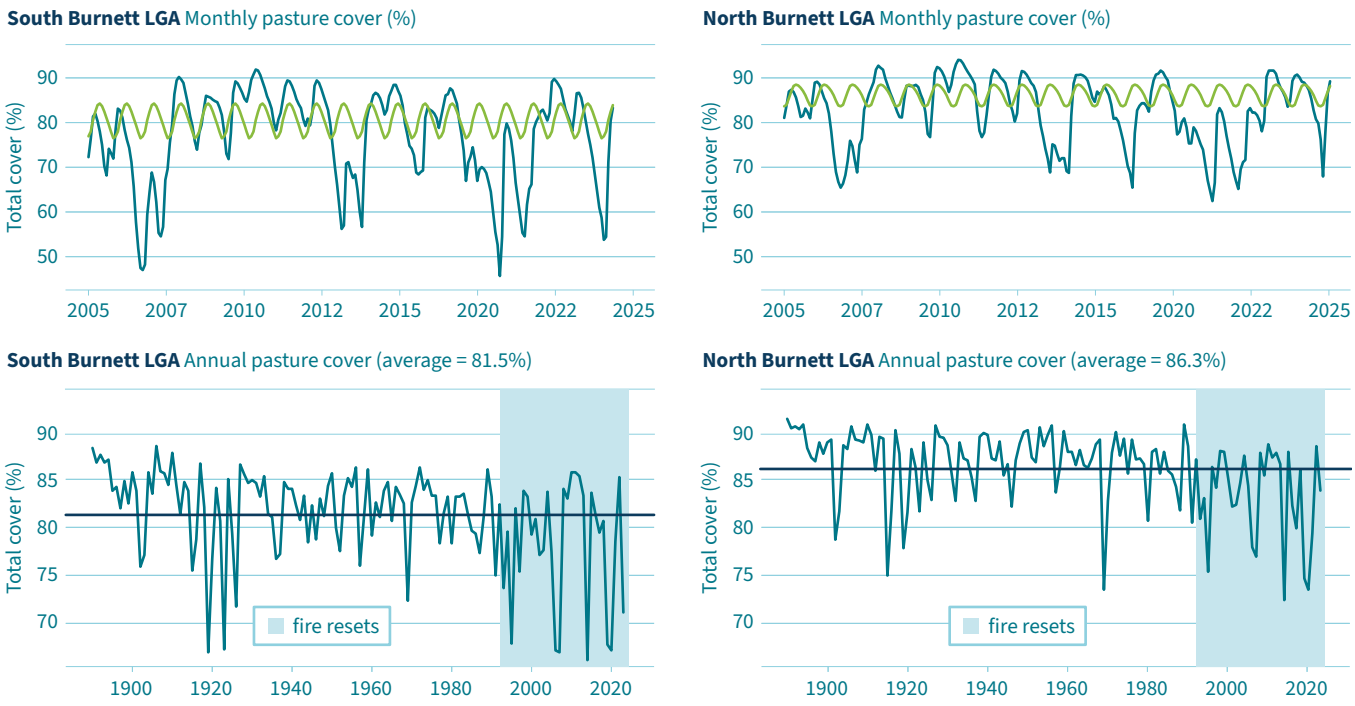
**– Grazier, Burnett**

Figure 25 provides a time-series picture of several indicators for the South Burnett and the North Burnett. There are many factors influencing these indicators, which affect the ability to draw wider any conclusions from the LGA-based data:

- Data gathered from a large area means the data will be 'dampened' – i.e. averaged for the area.
- There will be higher and lower values that may affect land processes.
- Data includes forestry, conservation as well as grazing properties.

There are large drops in the monthly and annual pasture cover across the period. While the values are not what may be expected, it is a weighted average, so there are areas of the LGA well above and below. *"This would also include well-managed properties with better cover and not so well-managed properties with low cover"*[30].

**Figure 25:** Monthly pasture cover.[64]




***"We sold our cattle early, we had money in the bank and kept our groundcover."***

**– Grazier and small business owner**

***"There areas of significant overgrazing to a point where it is questionable if that country will ever recover – pure rest won't fix it now – not without significant intervention."***

**– Growers Group**

Both published research and land manager's observations identify drought results in mobilisation of sediment (topsoil) from paddocks to water ways. This has a negative impact on both land and wetland condition. The 2015 Queensland Government report, *A landscape hazard assessment for wetlands in the Great Barrier Reef catchment*, mapped the various hazards to the health of wetlands, including sedimentation. Figure 26 indicates areas of the Burnett and Mary region's wetlands sediment input hazard. Most of the region has either high or very high hazard sediment score. There are several factors which influence this score including topography (much of the region is undulating), soil properties, grazing management and seasonal variability (long dry periods often followed by high intensity/flooding rain). As O'Sullivan[31] identified, keeping ground cover above 50% at all times will reduce the loss of topsoil and the mobilisation of sediment.

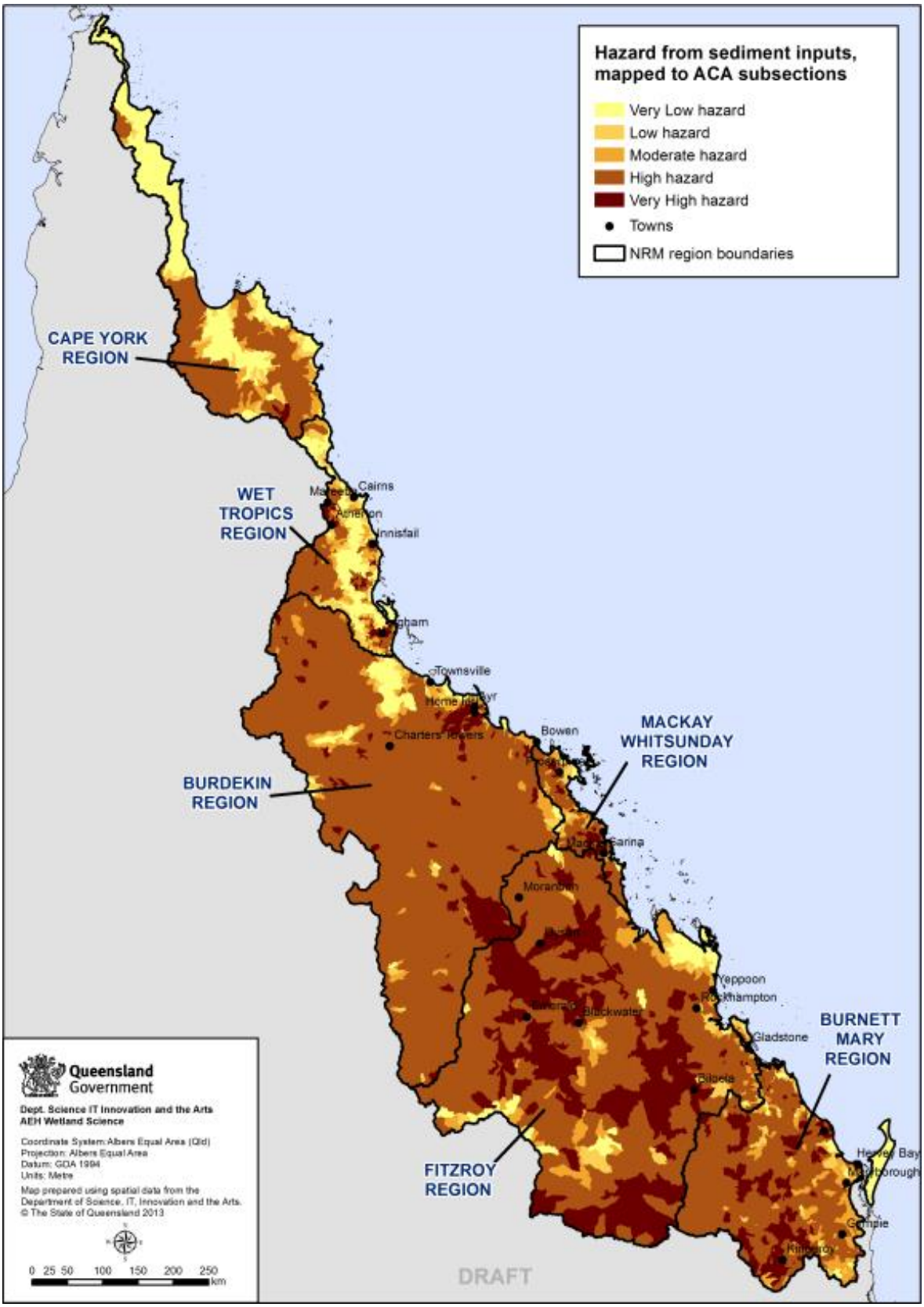
The Burnett Catchment Care Association (BCCA) Community Needs Analysis (2018) identified a range of environmental issues that required addressing, and highlighted the need to build the expertise/knowledge of producers in the following environmental management areas:

- Land rehabilitation/environmental engineering (e.g. erosion control design and works)
- Crop selection and rotation
- Biosecurity
- Water security and management
- Climate (e.g. weather forecasting tools and technologies).

Producers in the Western Burnett, through the Western Burnett Agricultural Strategy, identified they are already pursuing drought resilience and sustainability by utilising technology and professional assistance to implement various management practices, such as:

- rotational grazing practices
- integrated pest management
- erosion management and topsoil retention
- drought mitigation and water storage management
- protection of riparian zones
- reducing sediment run off to waterways and the Great Barrier Reef
- pasture improvement
- investing in farm infrastructure.

**Figure 26:** Hazard from sediment inputs across the greater Burnett region catchment.[65]



The Burnett and Mary regions have five threatened ecological communities and about 100 listed threatened species. The impacts of drought on terrestrial and aquatic flora and fauna populations are well documented for some species and evolving for others. The Burnett River has drier sections in the Boyne / Stuart and upper Burnett. These riverine areas and associated impoundments can dry out earlier than other areas. These dry outs lead to large fish and turtle kills. For aquatic dependent species, both water quantity and quality are integral to their survival. High levels of water extraction leading into and during dry times potentially reduces water quality (e.g. increases salinity levels) thus placing further stress on aquatic ecosystems. Also, climactic conditions associated with drought, such as prolonged very hot weather can also lead to elevated water temperatures.

The Australian Lungfish is an iconic species native to the Burnett and Mary River systems. Lungfish have significant drought resilience while their habitat is not damaged. However, the region's freshwater turtles tend to lose condition and their habitat deteriorates during drought, resulting in reduced numbers of offspring. Lengthy periods of hot days are also impacting on species such as the Mary River Cod when river warming isn't producing the appropriate conditions required for breeding.

The World Wildlife Fund have estimated since 2001 that the population of koalas in South East Queensland have declined by 55% – identifying deforestation, drought and bushfire as the primary causes[32]. The Burnett Catchment Care Association have recently undertaken a project to determine the koala population of the Burnett region. BCCA have now established a baseline for koala population trends to be established and have also identified clearing of vegetation as a significant factor in declining koala populations.

Figures from the DESI 2020-21 Statewide Landcover and Trees Study (SLATS) Report show the Burnett region's extent of remnant natural vegetation is below 50% except for the Cherbourg LGA. While the rate of clearing is relatively low, it had increased during the drought period 2010–2018. Maintaining and re-establishing native vegetation and habitats is critical to supporting the geographical movement of species. It also protects connectivity and climate refuges in the landscape which are critical for natural climate adaptation, including drought impacts.

**Figure 27:** Percentage of remnant vegetation remaining in 2021.[66]

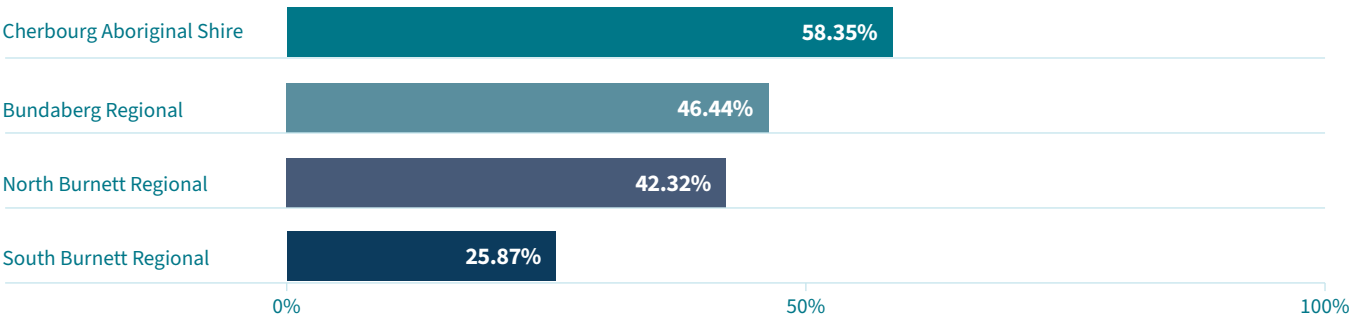
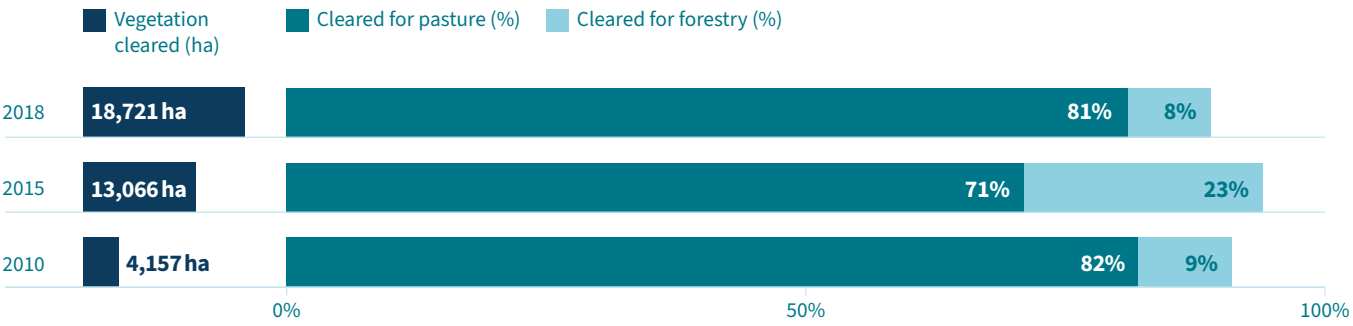



**Figure 28:** Burnett region historical clearing rates.[67]



# Infrastructure and built environment

***"During the drought we were also unable to get contractors or equipment… for example for cleaning out dams or erosion control."***

**– Member, Grower's Group**

Infrastructure and the built environment can take many forms. Often people only think of 'hard' infrastructure such as roads, railways, dams, power lines and buildings. While these are all essential infrastructure there are other less obvious 'soft' forms such digital connectivity, technical support networks and professional services ('soft infrastructure'). These are equally as important and are all affected by drought.

A recent report[33] on 'water opportunities' in the Burnett states:

> *"Water and energy security risks are inequitably shared across the region resulting in a decline in the viability and resilience of small-medium scale enterprises, local communities and the sub-regional economies. Future projections of increasing water and energy insecurity do not favour an improvement in this condition with inter- generational consequences". The report goes on to say "The region's rainfall runoff is estimated at 6500 GL per year[34] of which about 7% is consumed. Only half of the available water is utilised due to combined impacts of affordability, reliability and accessibility…. A significant proportion of the regions 1700GL of storage capacity is currently available as under-utilised water entitlement and at a nominal market value of $133 million, comprises about half of the State's un-used regulated reserves."*[35].

These findings support comments by various stakeholders (received during engagement) highlighting the under-utilisation of existing water resources and allowances, despite the controversies surrounding Paradise Dam. There is an opportunity to build improved regional drought resilience through increasing the utilisation of existing water storages. This assumption is supported by an analysis of the regions three largest dam storage capacity over time (Figure 30).

Analysis of the three historic levels of the Burnett's largest three dams, indicate for the 2010–2020 dry period, the levels still remained above 30% of dam capacity. This would indicate that water users relying on these reservoirs had relatively high, water security. However, there have been occasions where storage levels dipped below 10% capacity prior to 2010. These dips correspond with drought periods in 1996 and 2005 (refer to Figure 30). Both these drought periods weren't as severe as the 2015–2020 drought yet storages for the later period remained higher than the 1996 and 2005 years. This topic is worthy of further analysis and development to better inform future water management and allocation policies in the Burnett region.

The Australian Digital Inclusion Index uses survey data to measure digital inclusion across three dimensions of Access, Affordability and Digital Ability. All of the Burnett's LGAs index scores in 2021 are significantly lower than the Queensland average.

**Figure 29:** Australian Digital Inclusion Index (2021)

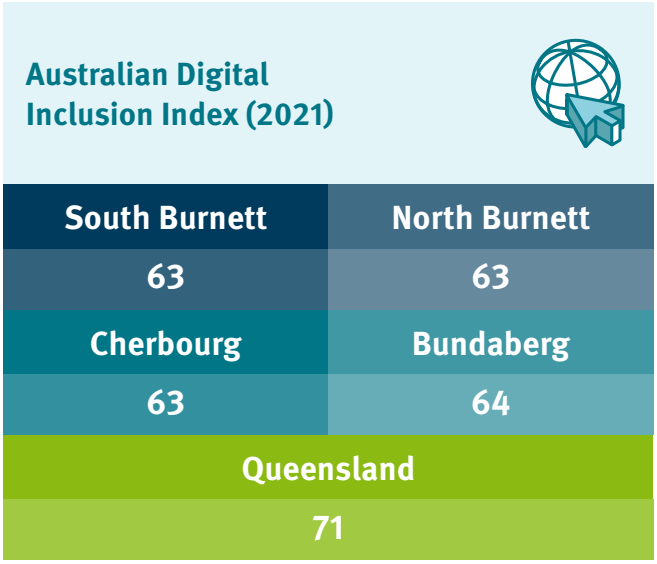
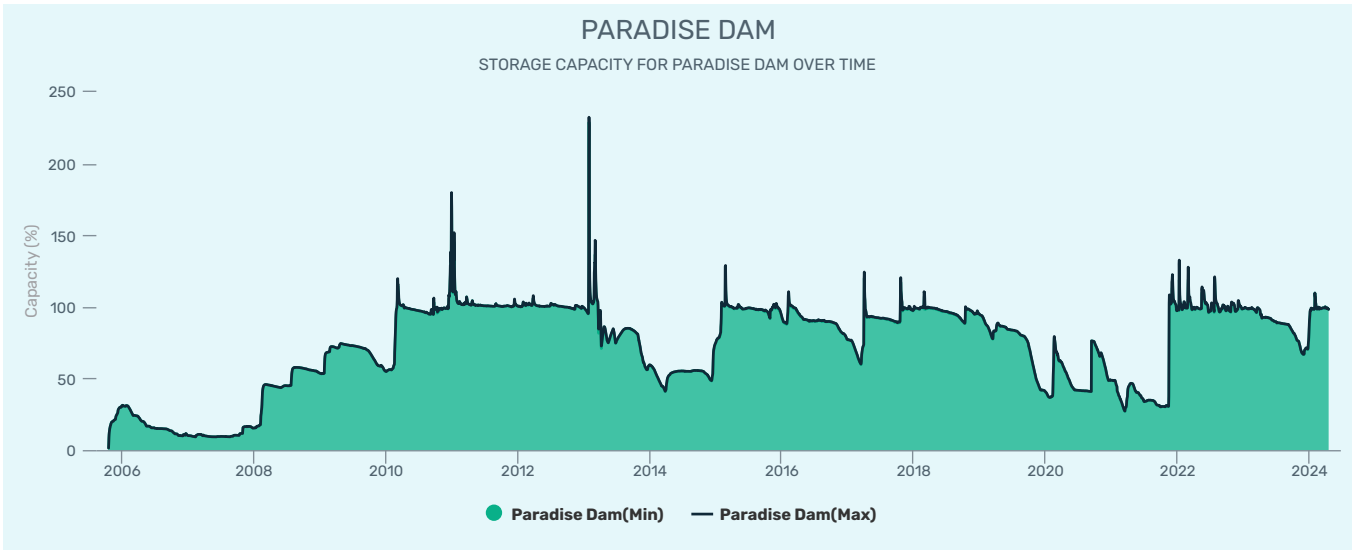
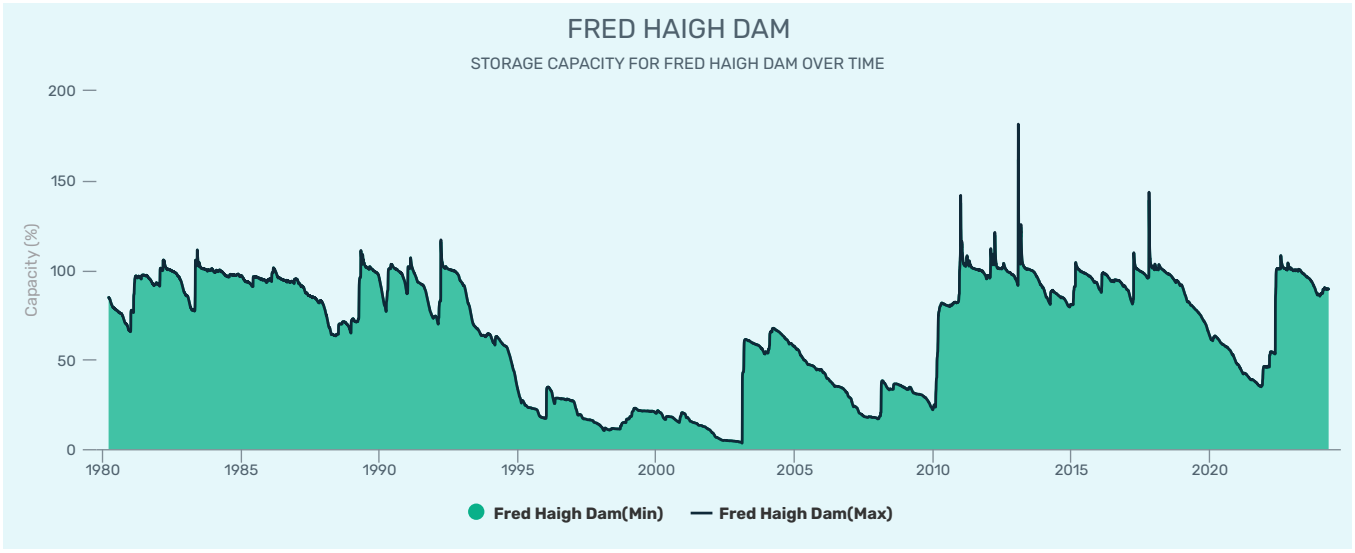


**Figure 30:** Historical dam levels of the Burnetts largest three dams (% of total storage capacity).[68]



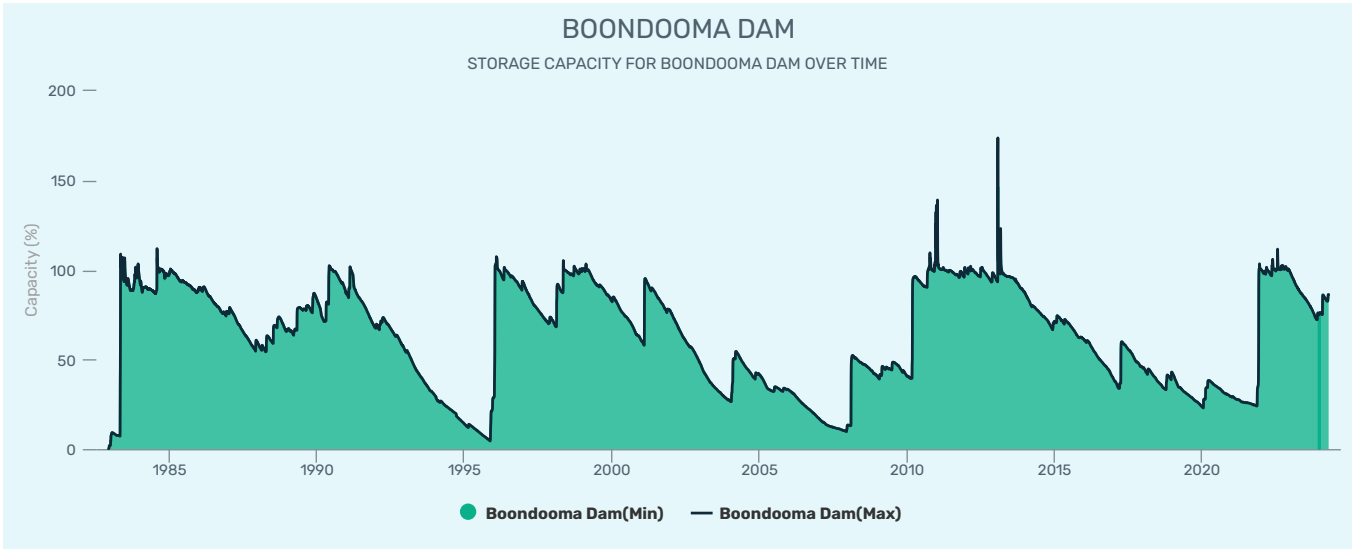



**Figure 31:** Burnett Region Road Network


***"Effective telecommunication networks are important, not just for keeping in touch and doing business, but during times of disruption. Our network of townships need reliable telecommunication infrastructure and back-up power supplies to prepare, respond and recovery from disruptions. Quality communication sets us up for success at other times too, creating opportunities for new, digital business ventures and remote working."***

**– Burnett Regional Resilience Strategy, 2023**

Access to digital services is equally important for building and maintaining drought resilience as it is for dealing with disaster and disruptions. Even in locations with internet connectivity, reliability remains an issue. A majority of agricultural producers state their connection is unreliable and they depend on expensive satellite services. A telecommunications provider noted a major issue is the current reliance on computer delivery for many professional and government-funded services. This disadvantages those who have little or no capacity to use computers, in particular, the elderly and lower socioeconomic sections of the community.

A group of producers in Northern Burnett identified reliable access to digital services as being critical. Having access to information, knowledge and service networks as a major objective in building farm resilience: "*Producers require access to timely, up-to-date information and benefit from networks and resources that allow for information-sharing both in social and isolated paddock settings. With the gradual decline in state funded extension provisions many producers have been left unsupported and without connection to the information and resources required to maintain or grow their businesses.*"

The Burnett region has an extensive road network and the Burnett Regional Resilience Strategy[36] states: "*…. reliance upon this network is critical to restoring essential community services and supporting economic and employment activities which are the lifeblood of the Burnett. The essential nature of transport extends beyond road networks to rail, air and stock routes. Not only do these networks enable us to travel for work and for personal purposes, but they support product, freight and stock movements, and drive tourism, as foundations of our economy.*"

However, stakeholders have said that during times of drought, the inadequacies of the road network are more evident. The Western and Northern Burnett producers have stated that inadequate road networks have "*…a negative impact on their triple bottom line*"[37]. Comments were received identifying having sufficient feedlots in place is a major contributor to lessening the impacts of drought, by allowing easy and early destocking of properties. However, one feedlot operator suggested the poor road network has discouraged the establishment of further feedlots in the region.

***"The rural road system has deteriorated badly."***

**– Beef producer, Eidsvold**

***"We need better road access for trucks, particularly B Doubles".***

**– Grazier, Rawbelle**

**Image:** 2022 floods in Gympie, Queensland

# Likely future impacts (risks) of drought in this region

An analysis of future drought impacts (under a climate change scenario) on People, Economies, Landscapes and Infrastructure has been carried out by the Burnett Mary Regional Group. A Risk Rating Matrix has been developed to provide generalised meaning to the way the risks are characterised.

The three risk categories reflecting increasing severity of consequence are:

**Management risk**
Anticipates management within Business as Usual or ecological natural variation. For example, adjusted hot weather working patterns, local business downturn, or supplementary feeding of stock.

**Disturbance risk**
Anticipates a significant adjustment to established operational responses or ecological function. For example, infrastructure damage, local business hardship, crop loss, or destocking to core breeder herd/flock.

**Disruption risk**
Anticipates the transformation of established patterns of activity, settlement or ecological function. For example, infrastructure loss, local business failures, repeated or unreplaceable crop or stock loss.

The Assessment's Risk Rating Matrix uses three levels of likelihood of occurrence during the next 10–year risk horizon (~2030): 'Unlikely', 'As likely as not', or 'Likely'. They also use three categories of consequence: 'Recovery', 'Adjustment', and 'Transformation'. This produces a suite of nine risk sub-categories – high, medium and low within each of the three categories.

For the first pass of risk rating, all risks have been assigned a default rating of medium for the Management risk. By default, all identified risks are assumed to be as *likely* as they are *unlikely*. It is also assumed recovery from consequential harm/impact can be achieved within established management responses, or within ecological natural variation. The risk rating is adjusted where there is material evidence or supported reasoning that the likelihood or consequence of an identified risk occurring is greater than the default. Management risks that are unlikely to occur in the 10-year risk outlook are not included.

In the following table, the level of confidence attributed to each risk rating reflects the type of knowledge applied. *Published* knowledge is information published in the public domain, primarily on authoritative websites (generally Government). *Expert* knowledge is the view of a person or persons who have recognised specialist knowledge of the subject being risk rated. *Practitioner* knowledge is the view of a person or persons (who may not also have expert knowledge personally) who is/are recognised as integrating specialist, strategic and experiential knowledge of the subject being risk rated.

**Figure 32:** Risk rating matrix.[69]

| | PROBABILITY OR LIKELIHOOD | | |
|---|---|---|---|
| | **Unlikely** | **As likely as not** | **Likely** |
| **RECOVERY** | MANAGEMENT RISK LOW | MANAGEMENT RISK MEDIUM | MANAGEMENT RISK HIGH |
| **ADJUSTMENT** | DISTURBANCE RISK LOW | DISTURBANCE RISK MEDIUM | DISTURBANCE RISK HIGH |
| **TRANSFORMATION** | DISRUPTION RISK LOW | DISRUPTION RISK MEDIUM | DISRUPTION RISK HIGH |

**Figure 33:** Projected climate indicators for the Burnett Mary Region under high and low greenhouse gas emissions scenarios.[70]

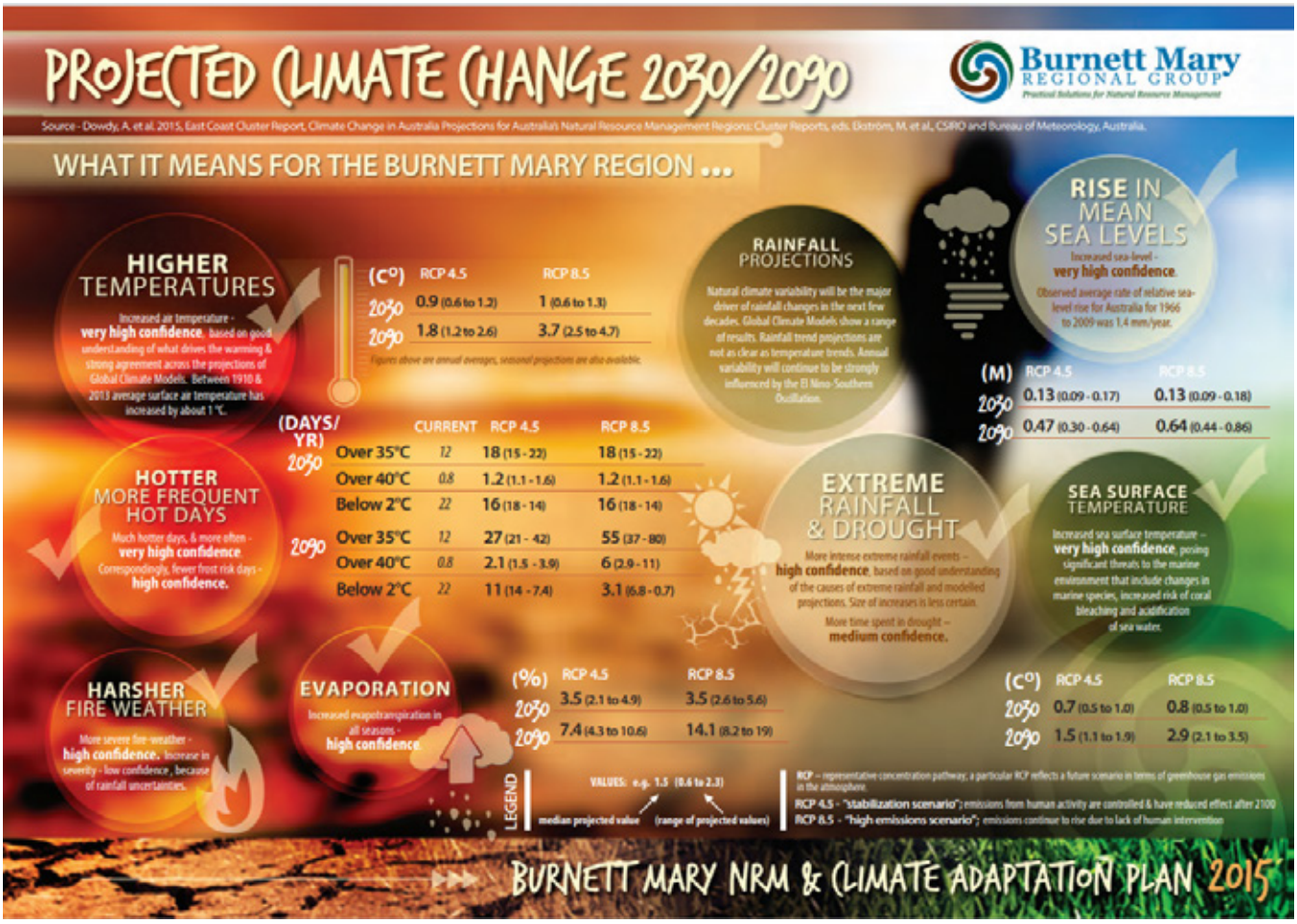


**Table 2:** Assessment of risks from future droughts

| At-risk asset (component or process) | Risks | | Confidence (Practitioner/ Expert/ Published) |
|---|---|---|---|
| **People, Culture and Community** | | | |
| Local community and networks (including vulnerable groups and individuals) | **Prolonged drought:** Local out migration. | MEDIUM | Practitioner/ Expert |
| | **Prolonged drought:** Exacerbated local issues. | MEDIUM | Practitioner/ Expert |
| | **Prolonged drought:** Mental health issues and suicide. | MEDIUM | Published |
| Agricultural knowledge and practice | **Prolonged drought:** Loss of expertise and experience | MEDIUM | Practitioner |
| Landscape care knowledge and practice | **Prolonged drought:** Loss of expertise and experience | MEDIUM | Practitioner/ Expert |
| Community events | **Dry Years and Prolonged drought:** Loss of volunteers and desire to attend | MEDIUM | Practitioner/ Expert |
| **Economy** | | | |
| Jobs and employment | **Dry years and prolonged droughts:** Reduced availability/ diversity of local employment | MEDIUM | Practitioner |
| Equity – Business, assets, capital and cashflow | **Dry years and prolonged droughts:** Decreased investment | MEDIUM | Published |
| Borrowing capacity | **Dry years and prolonged droughts:** Diminished borrowing capacity | MEDIUM | Published |
| Environmental Credits – payments and accrued liabilities | **Prolonged drought and bushfires:** Loss of sequestered carbon stock | MEDIUM | Published |
| Insurance | **Dry years and prolonged droughts:** Increased premiums | MEDIUM | Published |
| **Landscapes and Natural Environment** | | | |
| Crops | **Heavy rain ending drought (overland flood):** Damage or loss | MEDIUM | Practitioner/ Expert |
| | **Increasing evapotranspiration:** Permanent wilting point exceedance | MEDIUM | Published |
| | **Flash drought:** Crop failure | MEDIUM | Published |
| | **Dry years and prolonged drought:** Crop failure | MEDIUM | Published |
| Improved pastures | **Flash drought:** Reduced pasture condition | MEDIUM | Published |
| | **Dry years and prolonged drought:** Reduced pasture condition | MEDIUM | Practitioner/ Expert |
| | **Increasing evapotranspiration:** Permanent wilting point exceedance | MEDIUM | Published |

| At-risk asset (component or process) | Risks | | Confidence (Practitioner/ Expert/ Published) |
|---|---|---|---|
| Livestock | **Heavy rain (overland flood):** Damage or loss | MEDIUM | Practitioner/ Expert |
| | **Flash drought:** Reduced stock condition and losses | MEDIUM | Published |
| | **Dry years and prolonged drought:** Reduced stock condition and losses | MEDIUM | Practitioner/ Expert |
| Landscape hydration or dehydration | **Aridity:** Drying trend | MEDIUM | Published |
| Soil and surface waters oxygenation | **Flash drought:** Reduced dissolved oxygen and fish kills | HIGH | Expert |
| Soil erosion | **Heavy rain ending drought (overland flood):** Damage or loss | MEDIUM | Published |
| Carbon sequestration | **Bushfires:** Loss of carbon stock | MEDIUM | Published |
| Habitat cycles – ecological structure, function, stability and connectivity | **Bushfires:** Changed fire regime favouring exotic pioneers | MEDIUM | Published |
| | **Increasing mean temps:** Loss of key links or species | LOW | Published |
| | **River flood:** In-stream habitat sedimentation | MEDIUM | Published |
| Ecological resilience to impact and recovery capability or capacity | **Increasing mean temps:** Reduced adaptive capacity e.g. fish, amphibians and reduced extent or effectiveness of refugia | LOW | Published |
| Groundcover (dust storm and erosion) | **Dry years and prolonged drought:** Reduced condition or loss of living material/all surface material | MEDIUM | Published |
| Floodplains, riparian areas and wetlands: soils and vegetation (flooding) | **Prolonged drought:** Reduced condition or loss/dieback of vegetation | MEDIUM | Published |
| | **Dry years and prolonged drought:** Increased vulnerability to flood | MEDIUM | Practitioner/ Expert |
| Vegetation types and condition: fuel loads (bushfire) | **Dry years and prolonged drought:** Increased vulnerability to bushfire | MEDIUM | Published |
| **Infrastructure and Built Environment** | | | |
| ICT and data | **Drought (all):** Increased load on services | MEDIUM | Expert |
| Water infrastructure | **Dry years and prolonged drought:** Increased demand | MEDIUM | Published |

# Building drought resilience in our region

## Lessons learnt from the past – stories of resilience

*"Drought is a slow burn – it's like 'Boil the Frog'."*

**– Agricultural producer, Burnett**

According to the Western Burnett Agricultural Strategy[38], producers in the Western Burnett are building their resilience to seasonal conditions and market fluctuations. They are:

- installing or upgrading irrigation infrastructure to allow for more efficient use of water allocations
- growing hay to store feed for dry times
- installing additional watering points and fencing to land type
- upgrading on-farm water storage capacity
- improving pasture performance and soil health by sowing pastures and implementing rotational grazing and regenerative agricultural practices
- upskilling in soil health improvement options [graziers and citrus growers].

*"Younger Farmers are looking at things differently. More seem to be staying in agriculture now – go to Gatton and return – this is positive – they bring new ways and open minds – better education changes the prospects of local farming in the long term."*

**– Director, CSO**

Horticulturalists in the Bundaberg area are now building new skills and knowledge in irrigation and cropping input efficiency through the VegNet 3.0 program. This involves looking at ways to reduce the amount of irrigation and thus input costs due to the potential 'over-watering' of crops.

*"The idea behind the weigh scale technology adoption was to monitor the growth pattens of the crop and only water when the plants overall weight reached a predetermined threshold. The scale installation had immediate noticeable effects, with the grower able to reduce their daily waterings by 30%. This reduction in irrigations has increased the efficiency and profitability of the operation as each irrigation was being applied with fertilisers, hence reducing this application cost by 30% also."*

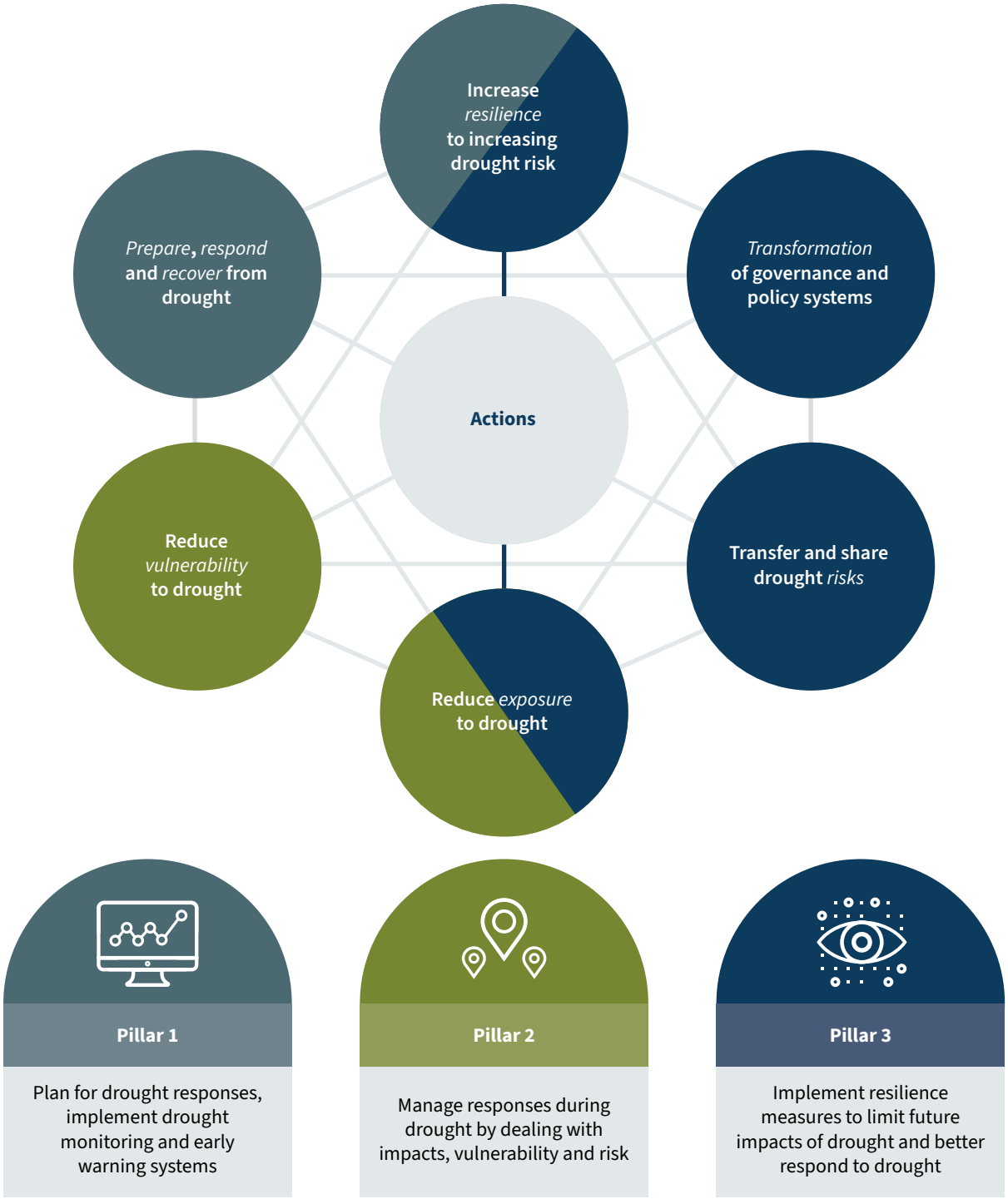
**– National Vegetable Extension Network Wide Bay Burnett (Bundaberg Fruit & Vegetable Growers, 2022)**

Education providers such as TAFE are reviewing and modifying curriculum.

*"We are exploring and looking at where our training and our services fit into drought & climate change. There is a lot of commentary around sustainable farm management practices and holistic management…that is where we need to end up. Ware investigating teaching more sustainable options – there is a bit more acceptance that some things are changing. We have nothing we can just pull off the shelf to deliver at the moment, but work is going into the networks and communicating with the content experts to help formulate new programs."*

**– Manager, TAFE**

**Figure 34:** Key pillars and actions of the Drought Resilience, Adaptation and Management Policy (DRAMP) framework.[71]



The Wide Bay Burnett Regional Plan has identified an ongoing need for co-ordinated investment into the region's transport network. An upgrade of these networks has been identified to facilitate economic growth and regional resilience to build new opportunities. These opportunities include unlocking export markets, strengthening the regions cities and towns and growing agricultural, manufacturing and natural resource sectors' productivity[39].

Supporting communities to build their capacity to manage and recover from natural disasters and drought continues to be a priority for many industry groups. Similar too for community groups, natural resource management, catchment management, and government organisations. Examples include a program hosted by the Burnett Catchment Care Association. The program aimed to:

- Increase landholder planning and risk management capacity.
- Build rural businesses viability with less reliance on government support after natural disasters.
- Increase community connections with a focus on the importance of social capital.
- Build meaningful and long-lasting resilience for their business.

The program included the hosting of 17 events with 157 individuals attending. Evaluations of the program indicated many recipients were considering changes to their business management as result of attending these events.

Other examples of support to build community resilience include the Queensland and Australian Government-funded Rural Financial Counselling Service (RFCS) which targets both agricultural and town business owners. Growcom has a team of Resilience Officers who help horticulturalist to identify goals, business and climate risks; and strategies to manage these risks.

# A vision of our drought resilient region

## Our vision statement

**Strong and healthy people living with the land and resilient to drought.**

In examining a range of possible futures, we have contemplated three scenarios, where we:

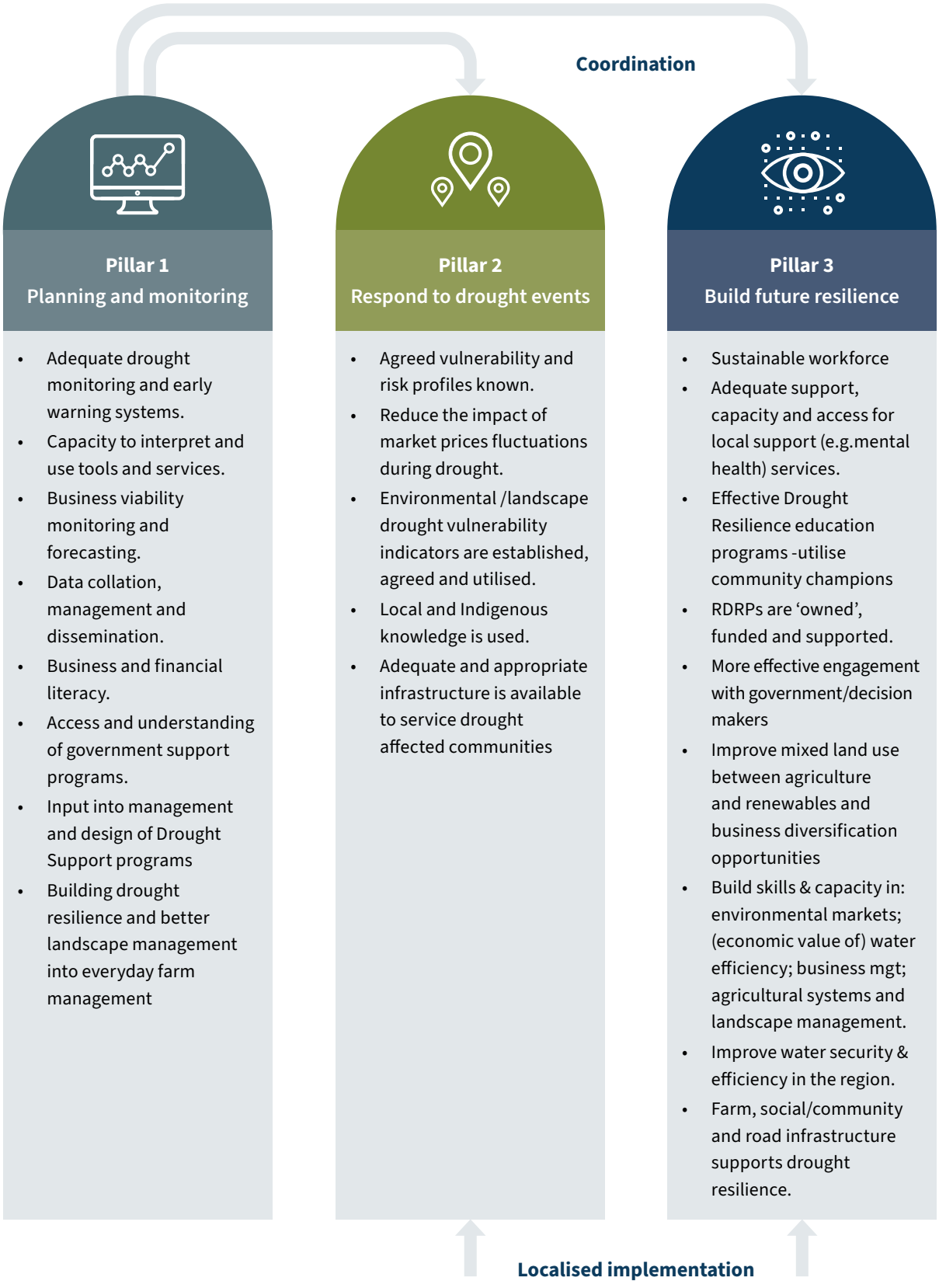
- **Do The Same –** where we make little change and continue thinking, behaving, and making decisions in the region much the same as we have in the past.
- **Do More –** where we learn, adapt and modify. Where we increase the intensity, scope, size or frequency of our actions. This could mean more people, more money, more often, etc.
- **Do Things Differently –** where we undertake transformative change and move towards making systemic changes.

# Key aims and objectives

The objectives guide a set of strategic actions for which investment cases will be developed. Development of both the objectives and priorities have been informed by community feedback and tested with stakeholders.

- The RDRP is 'owned' and promoted by an appropriate regional organisation/s.
- Appropriate policy and governance platforms are in place to support the implementation of the RDR Plan.
- A collaborative approach to implementing the RDR Plan is in place and funded.
- Widespread enterprise level drought risk management is established across the region.
- Implement measures to limit impacts of drought and better respond to drought.
- Adequate and appropriate drought risk management essential infrastructure in place and stress tested for times of drought.

**Figure 35:** Three pillars for the Central West Regional Drought Resilience Plan.



## Establishing priorities

After reviewing and reflecting on the ideas and issues generated through the analysis from the initial engagements, stakeholders were asked to prioritise the issues from two perspectives:

(1) the priority of the issue in terms of its relative importance to the region
(2) the priority in terms of the importance of taking action to increase drought resilience.

Later, as part of a deliberative and reflective model of co-design, regional stakeholders further prioritised and sequenced pathways and actions prior to development of the final draft of this RDR Plan. This final review process was informed by additional requested information requested by stakeholders.

The engagement and co-designed planning processes highlighted two significant and overarching issues requiring ongoing priority and attention. The need to:

- develop more effective governance structures and arrangements to develop and deliver sustainable drought resilience initiatives – including resolving the issue of 'ownership' of the RDR Plans
- ensure all drought support programs utilise a 'tiered support' approach that requires – at its foundation – both enterprises and communities develop a multi-faceted drought resilience plan to be eligible for further support.

This plan also builds on and complements existing regional planning undertaken by QRA to develop the Burnett Regional Resilience Strategy 2020, which identified the following objectives as critical for coordinated resilience action:

- sharing, leveraging and coordinating resilience efforts across the region
- adopting a place-based approach to resilience action, tailored to the varied characteristics of the region and its communities
- aligning sustainable development with disaster risk reduction
- telling our unique resilience story, recognising that one size does not fit all
- recognising the role of disaster resilience to our local and regional economy and social (or community) resilience.

**Image:** Mount Walsh National Park, Queensland. *Source: Helen Harding.*

# The Regional Strategy

This Regional Drought Resilience Plan is a locally led and regionally coordinated plan and actions will be driven from a regional level. It is acknowledged that some actions require involvement of additional stakeholders such as state or federal agencies, regional governance, local stakeholder groups, charities, NRM bodies and community groups. Where this is the case, actions will be driven through local leadership and while stakeholders may work together to deliver the actions, this plan does not commit these additional stakeholders to any responsibility, resourcing or funding.

The regional actions in this plan most commonly fit one of three categories:

- single actions or initiatives producing a drought resilience outcome across most or all of the region
- actions and initiatives 'rolled out' consistently in communities across the region
- actions and initiatives with uniform regional objectives, allowing flexibility in how they are implemented in individual communities.

Although all actions are designed to produce long-term drought resilience outcomes, it is understood some actions may only be 'triggered' by the next drought declaration. It is intended the practical implementation of this RDRP will commence with the co-design and development of a detailed Implementation Plan.

## ACTION PLAN

### People, culture and community

#### Pillar 1 – Planning and monitoring

**Projected outcome:** Plan for drought responses, implement drought monitoring and early warning systems.

| | | |
|---|---|---|
| Adequate drought impact monitoring and early warning systems. | Design effective drought monitoring and early warning systems – integrating climate, soil, water and socioeconomic indicators, along with real time drought assessment products that provide timely information to support decisions. | Undertake an analysis of what is needed, what is here, what are the gaps of monitoring and early warning systems and community capacity to use the systems.<br>Develop and pilot education programs that build an understanding of, and capacity to use, the drought monitoring and early warning systems. |
| | Invest in developing and maintaining weather and other early warning infrastructure to ensure there is coverage for all of the Burnett region at a local scale. | Secure government investment to establish new pan evaporation measurement stations in the Burnett region. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Local capacity to support interpretation of relevant tools and services. | Build local teams in the Burnett region to provide effective interpretation and usage of drought monitoring, early warning and short time forecasting products. | Place more climate information dissemination officers – such as Climate Mates – in the Burnett region by 2025 to deliver capacity building workshops. |
| | Continue to develop model regional Drought Response plans (similar to current QDMA emergency/disaster response plans). | Project to produce model Drought Response plan. Pilot in three areas of the Burnett region. Develop framework and model plan template. |

## Pillar 2 – Respond to drought events

**Projected outcome:** Manage responses during drought by dealing with impacts, vulnerability and risk..

| | | |
|---|---|---|
| Agreed vulnerability and risk profiles known. | Develop drought risk profiles of vulnerable groups – including women, children, elderly, farmers, pastoralists, marginalised communities and Indigenous groups. | Identify priority vulnerable demographic groups. Conduct a project to develop drought vulnerability indicators for the identified priority groups. |
| | Develop key community resilience indicators (individuals and communities) to measure the impacts of drought. | Carry out a literature review of existing indicators and resilience frameworks; test these with stakeholders.<br>Identify gaps and areas for further development.<br>Test model indicators in the Burnett region – conduct a baseline study using identified indicators.<br>Identify impacts, vulnerabilities and potential solutions in each location (or regionally).<br>Evaluate, report and distribute widely.<br>Deliver educational workshops to disseminate results. |

## Pillar 3 – Build future resilience

**Projected outcome:** Implement resilience measures to limit future impacts of drought and better respond to drought.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Secure sustainable workforce in drought vulnerable communities. | Continue to identify employment incentives and opportunities for drought vulnerable communities in the Burnett region. | In collaboration with key stakeholders, run 'think tank' forums around the Burnett region to identify potential employment opportunities. |
| Support and develop the capacity of local support services. | Enhance the community's capacity for self-help through locally-based appropriate support workers and services. | Develop business cases for locally based support workers and services.<br>Develop and fund programs to educate people on accessing local support services.<br>Look for opportunities to strengthen local and regional alliances between support services (e.g. not-for-profit and government agencies). |
| | 'Grow your own (jobs)' – Look for funding opportunities and opportunities to create positions within not-for-profit organisations. | Develop a regional program for schools to attract young people to not-for-profit positions and seek funding for more locally-based positions. |
| Adequate access and support for community mental health services. | Build and/or develop adequate community-based programs to support mental health across the region. Work to encourage local service profiles/priorities meeting local demographics and priority needs. | Continue advocating for adequate services and facilities across the Burnett region. Especially for personnel on the ground to deliver 1:1 services.<br>Generate funding to trial and maintain 'peer support' programs.<br>Work with the Primary Health Network and other mental health programs to develop a comprehensive mental health plan for the Burnett region, including building personal and community (drought) resilience. Acknowledge and further build the capacity of and support existing groups.<br>Develop a reliable demand profile, gap analysis and business case for new programs and "doing it differently".<br>Run a regional small grants program to encourage social networking events.<br>Utilise underused venues. Review and prepare a business case for future self-funding or support required. For example, three locations across Burnett – bi-monthly comedy movie festival ('Funnybones Festival'). |
| | Review programs and service delivery to ensure all opportunities for further education, awareness and early intervention are taken up. | Work with TRACC Queensland Health to conduct a review of mental health services available in the Burnett region. Work with key groups to identify opportunities for improvement. Select three to four local projects to trial for two years, then evaluate and prepare a business case for further roll-out. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Effective Drought Resilience education programs are developed and available. | Develop and implement a comprehensive framework of Drought Resilience education programs – including school education programs, vocational and tertiary programs, professional training programs, training for agricultural enterprises and local businesses, academic programs and research. | Carry out a review of existing 'drought-related' education. Identify gaps and key lessons learned.<br><br>Develop a draft framework and pilot various education programs and resources in the Burnett region. |
| Utilise community champions more effectively for drought resilience. | Local champions – both individual and organisations – are identified and sustained so they can lead and support their communities through 'hard times'. | Commission research or consultation to identify community 'best practice' champions and explore different methodologies to involve them most effectively. Publish appropriately via a discussion paper.<br><br>Conduct pilot activities involving various champions for community, economy, landscape and infrastructure. Develop and share case studies – for example through field days, written and web-based information.<br><br>Establish peer-to-peer learning networks inviting credible local and respected early adopter producers and where possible, laggard adopters supported by knowledge experts as required.<br><br>Conduct three 'sub-regional' trials in the Burnett region to identify local champions – both individual and organisations. Develop and run a capacity-building program with FRRR, ARLF and other key organisations to build skills and knowledge.<br><br>Work with resilience champions to identify further suitable programs for their 'sub-region'.<br><br>Institute a Resilience Champions award program (sponsored by the key stakeholders such as Minderoo and not-for-profits). |
| More effective engagement with government and decision makers. *(Continued on next page)* | Understand barriers and or incentives for improving engagement with government and decision makers. | Engage with project partners (e.g. UniSQ) to scope and deliver a research program on the impact of government in rural and regional communities, with a focus on:<br>• Local barriers/incentives to engaging with government/decision makers.<br>• Engagement and local decision making.<br>• Community empowerment to influence change.<br>• Emerging trends (e.g. impact on drought communities when there is change imposed on them).<br>• Recommendations and learnings which can be used to capacity build in communities.<br>• Seek funding to conduct the project (e.g. from FRRR, RDA, or other sources).<br>• Consultation completed and report delivered.<br>• Outcomes to inform further RDRP projects. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| More effective engagement with government and decision makers. *(Continued from previous page)* | Build community capacity to shape opportunities in response to local issues, mobilise community support and engage with government and decision makers to effect change. | Develop and deliver two pilot workshops within the Burnett region, specifically working with communities experiencing changes due to government policy (e.g. regional energy transition).<br>Establish a steering committee.<br>Co-design an engagement process in conjunction with the steering committee.<br>Develop an engagement plan.<br>Deliver pilot capacity building workshops and activities identified in the design phase.<br>Evaluate and report. |
| Improve community benefits from better mixed land use between agriculture and renewables. | Better understand the potential challenges and benefits of renewable energy in drought-affected communities. Develop model Community Benefit Agreements for mixed land use and large-scale renewables projects. | Undertake a robust study (Australian and world best practice) on the:<br>• potential benefits of renewable energy in agricultural and drought-affected areas<br>• viability of implementing Community Benefit Agreements (e.g. as used in the mining industry) to encourage better outcomes for local communities from mixed land use and large-scale renewables projects.<br>Produce a discussion paper to advocate for necessary changes and recommend model tools to pilot. Seek projects and partners to pilot in the region. Carry out pilot, evaluate, report and share findings. |
| RDR Plans are 'owned', funded and supported. | Negotiate with Queensland and Australian governments to identify appropriate 'owners' of the RDR Plans in Queensland. | Work with Queensland and Australian governments to identify 'owners' of the RDR Plans in Queensland. Work with local owners to identify what support they need and want to further implement the RDR Plan in the Burnett region. |

# ACTION PLAN

## Economy

### Pillar 1 – Planning and monitoring

**Projected outcome:** Plan for drought responses, implement drought monitoring and early warning systems.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Effective business viability monitoring and forecasting. | Further develop and fund monitoring and forecasting frameworks to support farm and town business viability. | Undertake a desktop analysis of existing monitoring and forecasting frameworks that support business viability. Assess these for appropriateness and currency for the Burnett region.<br>Engage stakeholders and develop a draft framework – pilot with three locations in the Burnett region. |
| Effective data collation, management and dissemination. | Improve data collation, management and dissemination for community sustainability priorities. | Establish a stakeholder focus group to analyse the practicality of existing data collation, management and dissemination.<br>Develop a model framework for better data collation, management and dissemination. |
| Build business and financial literacy. | Improve business management and financial literacy. | Provide access to, and training in, agri-focussed financial management and record keeping programs.<br>Provide training in the development of risk management and mitigation planning. |
| Assist community applicants to better access and understand government support programs. | Utilise the 'navigator' model and make assistance available to access, understand and (successfully) apply for government support programs. | Pilot the appointment of a locally-available support person(s) to assist with funding applications – e.g. collectively fund resources that build on the Farm Management Grant model. Training, one-on-one or group advice, and online resources. |
| Better input into management and design of drought support programs. | Seek opportunities to provide input into the review and management of current and future drought support programs. | Seek opportunities to pursue the following initiatives:<br>• Review and revise the definition of 'primary producers' (noting this may differ across regions).<br>• Review the current eligibility for drought support – e.g. farm incomes and sub-categories, small rural landholder, off farm incomes.<br>• Promote Farm Business Resilience planning as a minimum requirement for all drought support (except for emergency). |

## Pillar 2 – Respond to drought events

**Projected outcome:** Projected outcome: Implement resilience measures to limit future impacts of drought and better respond to drought.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Agreed economic vulnerability and risk profiles known and used. | Analyse agricultural enterprise types under medium- and long-term climate change, land condition and market prediction scenarios to establish viability risk profiles and develop appropriate responses. | Conduct an analysis of enterprise types and their vulnerability to drought impacts.<br>Identify key issues and vulnerability factors. Establish a stakeholder group with local knowledge and expert advisors – develop model responses, test models, record and share results. |
| Reduce the impact of market price fluctuations during drought. | Review and explore ways to reduce the impact of market price fluctuation during drought for cattle, vegetable, cropping and horticulture. | Conduct a review and study to explore ways of reducing market price fluctuation.<br>Develop and implement an awareness program. |

## Pillar 3 – Build future resilience

**Projected outcome:** Support activities know to promote future resilience.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Business diversification opportunities are identified in drought affected areas. | Develop an Education and Capacity-Building program – especially for the 'next generation farmers' – on Farm Business Diversification and developing new locally based businesses. | Design, fund and implement a program of workshops (including best practice case studies), mentoring and resources on small business planning and management. As a pilot, fund and trial the workshops across the Burnett region for two years. |
| | Investigate and identify business diversification opportunities (on and off-farm, town businesses) to support drought resilience. | Review existing work and analyse gaps, opportunities, risks and barriers to uptake and establish costs associated with diversification opportunities.<br>Hold three business stakeholder forums across the Burnett region to explore business diversification options.<br>Develop and disseminate case studies of successful diversification within drought impacted areas. |
| | Establish an appropriate and affordable insurance scheme. | Conduct a review on insurance reform with a goal of identifying more affordable, customised insurance options. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Facilitate an understanding of environmental markets. | Ensure independent and unbiased information is available. | Develop an independent and unbiased discussion paper with several diverse stakeholders, to ensure a balanced opinion. |
| | Ensure (more) practical information is available. | Develop available online education products for download. Work with key industry and stakeholder groups to strive for balanced information. |
| | Develop a model program to raise awareness and understanding of opportunities and challenges of participating in environmental markets. | Develop and trial two workshop programs in the Burnett region, sharing independent and unbiased information; providing access to information tools. |
| The economic value of water efficiency is known and accepted. | Develop a horticulture program which combines expert advisors with local 'success stories' for advice and site visits. | Establish a project working group consisting of Growers Group(s), Natural Resource Management(s), Water Efficiency 'experts' (e.g. Sunwater, UniSQ and the Drought Innovation Hub).<br>Develop and implement a trial program for a minimum of three years – including practical onsite skills and knowledge, combined with training and online resources. |
| Promote drought resilient businesses.<br>*(Continued on next page)* | Support programs that better prepare farming and town businesses for drought. | Support education programs aimed specifically at small-block, peri-urban, 'blockies' and 'hobby farmers' who have purchased viable rural properties but do not have the knowledge and skills to run them effectively. |
| | Review the Rural Financial Counselling operations and charter to offer services aiming to ensure new farmers are set up for success. | Rural Financial Counsellors to deliver a proactive education program to producers, prior to hardship.<br>Additional Rural Financial Counsellors to be appointed in two regional towns in the Burnett. |
| | Improve coordination between support programs for small local businesses. | Develop partnership agreements, reporting and information protocols, and information-sharing forums into a 'one-stop shop'.<br>Seek adequate funding for a two year pilot. Review and report investment outcomes. |
| | Improve awareness of support programs among potential and current users. | Conduct an audit of available support programs in Queensland.<br>Run a pilot research program to identify gaps and areas for improvement through engagement with communities, users and key stakeholders.<br>Ensure a communications strategy is developed and widely distributed to providers. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Promote drought resilient businesses.<br>*(Continued from previous page)* | Develop and support more peer-to-peer programs. | Pilot a program of 'yarning circles', 'meet and meals', and 'fork to farm' events that align with existing events and groups – to provide practical knowledge from 'experts' with peers.<br>Trial models of small to medium enterprise mentoring, supported by Rural Financial Counsellors and key stakeholders. Evaluate and report on the investment outcomes. |
| Build drought resilience into all businesses. | Reflect drought resilience in policy and tax laws. | Develop a discussion paper including:<br>• redefining the 'farmer'<br>• who is a 'primary producer'<br>• eligibility for drought and other support<br>• tax laws and decisions<br>• off-farm income<br>• financial literacy<br>• location and availability of financial information and support<br>• steps to improve business self-reliance<br>• financial incentives for better farm management<br>• education needs<br>• rate rebates.<br>Develop a business case for reform and a change management strategy. |

# ACTION PLAN

## Landscape and natural environment

### Pillar 1 – Planning and monitoring

**Projected outcome:** Plan for drought responses, implement drought monitoring and early warning systems.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Adequate environmental/ landscape monitoring and early warning systems. | Continue the development of existing, and design of new, environmental/landscape monitoring and early warning systems. | Carry out a stocktake of existing drought monitoring and early warning systems, hard and soft infrastructure, and identify where opportunities exist to improve coverage and uptake – integrating multi-scale climate, soil and water information. |
| Building drought resilience and better landscape management into everyday farm management. | Build on the foundation of existing and previous capacity building programs. | Review and analyse current and previous programs – e.g. Farm Business Resilience Program (FARMBIZ). Identify key success factors and areas for improvement and/or expansion.<br>Design and develop an affordable integrated suite of best practice programs (including existing programs) of farm management education around topics such as income diversification, land management, business planning, etc.<br>Develop an incentivised professional development program for farmers. |
| | Increase local capacity for effective interpretation and usage of drought monitoring, early warning and short-time forecasting products. | Embed more climate information dissemination officers – such as Climate Mates – in the Burnett region by 2025, to deliver capacity building workshops. |

## Pillar 2 – Respond to drought events

**Projected outcome:** Manage responses during drought by dealing with impacts, vulnerability and risk.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Environmental/ landscape drought vulnerability indicators are established, agreed and utilised. | Agreed environmental/landscape drought vulnerability and risk indicators are identified and utilised in responsive program design and delivery. | Work with experts and stakeholders to develop and establish appropriate landscape and natural environment vulnerability and risk indicators.<br><br>Undertake three pilot projects in the Burnett region to trial and assess drought vulnerability and risk indicators.<br><br>Identify critical habitats for threatened species and identify actions required to protect and enhance those critical habitats.<br><br>Establish five projects enhancing critical habitats that are most threatened by the impacts of drought. |
| Local and Indigenous knowledge is utilised. *(Continued on next page)* | Traditional wisdom and First Nations skills and knowledge are incorporated into a range of practical land care/land management education and skills programs. | Conduct an audit of currently offered programs and courses (e.g. BMRG) including traditional wisdom and First Nations skills and knowledge.<br><br>Undertake a pilot research program identifying gaps and areas for improvement through engagement with Elders, educators and key stakeholders. Ensure the design for improved overall program and specific inclusions in capacity-building programs is developed and widely distributed.<br><br>Seek funding to trial new education initiatives that include traditional wisdom and First Nations skills and knowledge, in the Burnett region.<br><br>Develop and trial specific programs that address the cultural effects of drought impacts on landscapes and country for Indigenous and First Nations people.<br><br>Incorporate native plants/foods and traditional land care practices in land regulation programs – e.g. reef catchment, vegetation. |
| | Improve access to a range of practical land care/ land management education and skills programs through better publicity and communication. | Develop a communication strategy to improve the awareness of, and access to, practical land care/land management education and skills programs. Lobby the government, private sector, peak bodies, and philanthropic bodies for funding, scholarships, subsidies and other program support. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Local and Indigenous knowledge is utilised. *(Continued from previous page)* | Continue to build skills, knowledge and capacity in new landscape management opportunities – e.g. carbon farming, biodiversity, natural capital programs, mixed agriculture/renewables, etc. | Develop and trial a regional program of seminars and workshops, self-learn educational resources, on-site visits, mentoring and advice.<br><br>Trial programs in the Burnett region for a minimum of two years – evaluate then develop a business case for ongoing support and possible roll-out.<br><br>Research a project with peak groups, key stakeholders and universities to identify the economic value of practices such as biodiversity value, carbon farming, mixed agriculture/ renewables, etc.<br><br>Publish a report and distribute widely. |

## Pillar 3 – Build future resilience

**Projected outcome:** Implement resilience measures to limit future impacts of drought and better respond to drought.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Improve skills, knowledge and drought resilience capabilities for new land owners. | Develop education programs for new landowners who have purchased viable rural properties but do not have the knowledge and skills to run them effectively. | Review current education programs (government and non-government) available for new landowners. Conduct research with representative groups to determine what works well and what they want; work with 'experts' to design a model curriculum.<br><br>Hold a series of education days (for new and existing producers) through existing stakeholder groups – e.g. Gympie District Beef Liaison Group, Mary River Catchment Coordinating Committee, Burnett Mary Regional Group etc.<br><br>Follow-up with further consultation and on-farm implementation workshops.<br><br>Hold two to three education events per year, for three to four years. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Increase adoption of drought resilient agricultural systems and landscape management. | Explore, share and disseminate best practices in land/water management for drought resilience. | Develop a practical model for land water management planning. Use a variety of models – e.g. Natural Sequence Farming model, regen to slow water flow over land, improve ground cover/ pasture, reducing topsoil/silt loss.<br><br>Review incentive programs to support proactive land and water management for drought affected areas.<br><br>Extend assessments linking economic development with water management e.g. Burnett river assessment.<br><br>Commence a study on water efficiency/ water harvesting measures, demand side requirements, water efficiencies, economic value, cost of implementing, expected outcomes for community, business and agriculture.<br><br>Design and implement a pilot education program on drought resilient water management practices for the Burnett region. |
| | Promote agricultural production systems that are drought resistant. | Establish a grants program that subsidies the development and implementation of on-farm sustainability plans.<br><br>Establish animal nutrition requirement workshops and services to allow for better animal and pasture management decisions. |
| | Promote further uptake of water recycling options. | Commence a study on water recycling – domestic, on-farm, industrial, business – to determine economic value, cost of implementing, expected outcomes for community, business and agriculture.<br><br>Research viability of controls and regulations to reduce over-extraction of groundwater and encourage recycling/re-use of water. Consult with stakeholder groups. |
| | Develop an information program to build skills in better on-farm sediment control practices. | Develop a practical model course (online, in-person and field visit) on best-practice on-farm sediment control. Pilot and test in three locations in the Burnett region. |
| | Map groundcover and sediment load in the Burnett region. | Access LIDAR data (and fund where not available) to assess and map groundcover and sediment load in the Burnett region. Analyse and produce a plain English discussion paper. |
| | Encourage the cultivation of drought-resistant species and varieties in drought-prone areas to improve crop, meat and fibre yields during drought. | Contribute to existing crop, meat and fibre yield trials. |

# ACTION PLAN

## Infrastructure and built environment

### Pillar 1 – Planning and monitoring

**Projected outcome:** Plan for drought responses, implement drought monitoring and early warning systems.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Adequate drought monitoring and early warning systems. | Design effective drought monitoring and early warning systems, integrating climate, soil, water and socioeconomic indicators, along with real time drought assessment products that provide timely information to support decisions. | Undertake an analysis of what is needed, what exists, and what are the gaps of monitoring and early warning systems. |
| | Invest in developing and maintaining weather and other early warning infrastructure to ensure there is coverage for all of the Burnett region, at a local scale. | Establish new A pan evaporation measurement stations in the Burnett region. |
| | Build water efficiency into regulatory and planning systems in Queensland. | Work with expert groups, universities, Local Government Association of Queensland, professional bodies, government agencies and others – to review current inclusion of water efficiency into planning schemes.<br>Identify areas for improvement in both content and public knowledge (awareness) of water use efficiency measures. |

### Pillar 2 – Respond to drought events

**Projected outcome:** Manage responses during drought by dealing with impacts, vulnerability and risk.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Adequate and appropriate infrastructure is available to service drought affected communities. *(Continued on next page)* | Expand current telecommunications and internet coverage, quality and reliability. | Advocate for the expansion of current telecommunications and internet coverage, quality and reliability in the region. |
| | Undertake projects improving digital connectivity in drought affected communities. | Undertake two priority projects in the Burnett region focusing on improving digital connectivity. |
| | Establish the level and types of infrastructure required to respond to drought. | Undertake an analysis of existing drought related infrastructure and whether it meets needs to increase drought resilience. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Adequate and appropriate infrastructure is available to service drought affected communities. *(Continued from previous page)* | Undertake regular assessment of infrastructure condition and adequacy. | Carry out an audit of the condition of existing drought related infrastructure. |
| | Ensure adequate resources are available to build and maintain essential infrastructure. | Develop a drought infrastructure maintenance and capital development plan, e.g. AAS27.<br>Ensure continued resources and support for key projects, e.g. Paradise Dam.<br>Ensure community meeting spaces are resourced. |

## Pillar 3 – Build future resilience

**Projected outcome:** Implement resilience measures to limit future impacts of drought and better respond to drought.

| Priority | Resilience activity | Priority action |
|---|---|---|
| Improve water supply security and water efficiency in all households, businesses and public buildings in the Burnett region. | Implement a program to improve potable water supply connectivity to as many households as possible. | Develop a business case to improve potable water supply connectivity to as many households as possible – with indigenous communities as a priority. |
| | Implement a program to fund and support on-site water harvesting, recycling and water efficiency for as many users as possible. | Plan and seek funding for a program providing and/or subsidising water harvesting and recycling hardware – e.g. tanks, pumps, pipes, etc – including education and advice.<br>Target unconnected households and buildings first, then connected public buildings (including sporting clubs, churches, etc.), businesses and households. |
| | Invest in water recycling and re-use. | Continue to advocate for funding for more water recycling and re-use infrastructure in the Burnett region. |
| Farm and community infrastructure maintained during drought. | Build financial capacity in farm enterprises to allow for the maintenance of property infrastructure during drought. | Continue the water infrastructure related subsidy schemes. |
| Improve regional and rural road infrastructure for drought resilience. | Implement a program to improve local road infrastructure to facilitate B-Double transportation. | Plan and seek funding to improve road infrastructure, specifically to and from feedlots / abattoirs to support de-stocking. |

| Priority | Resilience activity | Priority action |
|---|---|---|
| Ensure availability of public meeting / gathering points to support community drought resilience and social connectivity. | Plan, fund and maintain public meeting / gathering points to support community drought resilience and social connectivity. | Undertake a project to identify current and potential public meeting / gathering points to support community drought resilience.<br><br>Work with communities to prioritise and plan for building and/or maintaining community meeting / gathering points that allow improved social connectivity and opportunities for collaboration and community events.<br><br>Search opportunities for community self-resourcing, public / private partnerships and government funding. Develop and publish a plan. |

**Image:** Aerial view of Bundaberg, Queensland. *Source: © Ian Cochrane, 2017 (CC BY licence).*

# Community partnerships and communication strategy

Following the endorsement of this RDR Plan by Regional Development Australia – Wide Bay Burnett, a process will be established to engage and communicate with the community on the progress of activity implementation. This Communication Framework has been co-designed by key stakeholders and is deemed appropriate and feasible at the time of development. It is expected the Framework and its component activities will be modified over time, as issues and opportunities arise during implementation and as lessons are learned from experience.

**Table 1:** Key engagement activities

| Communication event(s) | Timing | Key audience |
|---|---|---|
| **Ministerial announcements** | Within 2 months of sign-off | General public |
| **Media releases – National/State** | Within 2 months of sign-off | General public |
| **Media releases – Local** | Within 1 months of sign-off | Regional and local communities |
| **Media stories – National and regional** | As required | General public |
| **RDR Plan – inclusion on websites** | Within 1 month of sign-off | General public |
| **Community/Sector engagement** | As required | General public, business representatives, agriculture representatives, community representatives. |
| **Presentation to Community Groups** | Within 2 months of sign-off; as required, annually | General public and members |
| **Presentation to Non-government Organisations/Charities** | Within 2 months of sign-off, as required | |
| **Project implementation/Monitoring, Evaluation and Learning reports** | As per MER Plan, as agreed with funders | Regional Development Australia (RDA), Queensland Department of Primary Industries (DPI), funding bodies. |
| **Project updates – media releases** | As required | General public |
| **Annual Report – general distribution** | Annually at end of year | General public, Federal Department of Agriculture, Fisheries and Forestry (DAFF), DPI, government agencies, non-government agencies. |
| **Annual Report – inclusion on websites** | Annually at end of year | General public, Federal Department of Agriculture, Fisheries and Forestry (DAFF), DPI, government agencies, non-government agencies. |
| **Project completion reports** | At completion of project | RDA, DPI, funding bodies. |
| **Project completion media releases** | At completion of project | General public, DAFF, DPI, government agencies, non-government agencies, funding bodies |

# Monitoring, Evaluation and Learning (MEL)

## Key Evaluation Questions

The Key Evaluation Questions for the Regional Drought Resilience Plan are:

- To what extent has the Plan been implemented and has impacted on the regional stakeholders' capacity and resources to better plan, manage and recover from climate challenges?
- What changes/support are/is needed to ensure that the Plan best provides an effective framework for action and stakeholders can effectively work together towards implementing those actions?

## Assumptions underpinning implementation of the Plan

The FDF Monitoring, Evaluating and Reporting Plan identified the following assumptions for effective implementation:

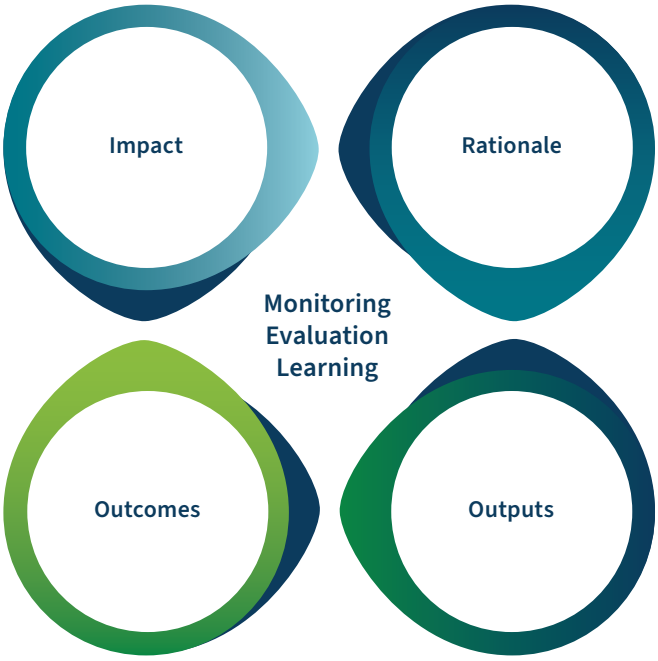
### Key assumptions affecting outcomes from 1–2 years

- Regional stakeholders have the capacity and capability to participate in strategic planning.
- Regional stakeholders are willing to cooperate with each other on regional planning.
- Program design is sufficient to give regional stakeholders opportunities to identify and communicate regional drought resilience needs.
- Relevant planning at other scales can be aligned.
- Regional communities are motivated to take ownership of completed plans and actively seek to implement them.
- Communities are willing to share learnings with other regions.
- There are sufficient learnings to inform future program design.

**Figure 36:** Adapted from Future Drought Fund (FDF) approach to Monitoring, Evaluation and Learning (MEL).

**Impact**
What signs of progress are there towards long-term drought resilience? What priorities and opportunities do the Fund and programs reveal for drought resilience policy, funding and programs?

**Effectiveness**
To what extent are programs achieving their intended outcomes (and any unintended outcomes)? What could be done to improve the outcomes of the investments?




**Appropriateness**
To what extent are the programs aligned with the strategic objectives of the Fund, and targeted at important needs? What can be done to improve the appropriateness of the investments?

**Efficiency**
To what extent are the Fund and program outputs being administered and delivered efficiently, and to the expected quality? What can be done to improve efficiency of the investments?

### Key assumptions affecting outcomes from 2+ years

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

These assumptions will need to be monitored during the implementation phase to provide feedback and highlight areas requiring further intervention.

## Monitoring progress and evaluating outcomes

The following table is based on the relevant FDF Monitoring, Evaluation and Learning Framework indicators and the actions developed in this Regional Drought Resilience Plan. The Plan includes several indicators against identified actions as outlined in Table 2.

**Image:** Cania Gorge, Queensland.

**Table 2:** Key monitoring indicators

| | **Outcome level:** Impacts 4+ years | **Outcome level:** Long-term outcomes 4+ years |
|---|---|---|
| **FDF Standard Indicators** | • Agricultural landscapes are functional and sustainable, with healthy natural capital (environmental resilience).<br>• Agricultural businesses are self-reliant, productive, and profitable (economic resilience).<br>• Agricultural communities are resourceful, adaptable, and thriving (social resilience). | Stronger connectedness and greater social capital within communities, contributing to wellbeing and security.<br><br>Communities implement transformative activities that improve their resilience to drought.<br><br>More primary producers preserve natural capital while also improving productivity and profitability. |
| **Specific Regional Indicators** | **Strong and healthy people living with the land and resilient to drought.**<br>• **People, culture and communities:** Communities' drought resilience has improved.<br>• **Economy:** Business owners are pursuing opportunities to increase financial security of their business before, during and after drought.<br>• **Landscape and natural environment:** Land managers are implementing land management practice change to improve the resilience of the landscape and the natural environment to drought.<br>• **Infrastructure and built environment:** Investing in building, maintaining and improving infrastructure has contributed to increasing the communities' drought resilience.<br><br>Note 2030 indicators in **Action Plan** tables. | **Key Aims and Objectives**<br>• A regional drought surveillance program is in place that monitors and analyses key indicators of current and emerging environmental (meteorological and landscape), social and economic conditions, which are markers of drought.<br>• There is widely shared and well-informed regional engagement with managing drought risk for long-term community resilience.<br>• The region comes together to build drought resilience.<br>• Widespread enterprise level drought risk management is established across the region.<br>• Measures are implemented to limit impacts of drought and better respond to drought.<br>• Adequate and appropriate drought risk management essential infrastructure is in place and stress tested for times of drought. |
| **Evaluation Approach** | These longer-term impacts are best captured at a national level by the Federal Government through ABARES surveys and other national statistics based on a benchmark and taking into account climate, market and other influences impacting on this outcome. | *Critical to regional-level monitoring of, and improvement to, the Plan will be an on-going Regional Oversight Group (ROG) to be nominated, and comprising of the Plan owner(s) and key stakeholder representatives. This group would have the role of initiating actions in line with the Plan, reviewing progress against the Plan objectives and making changes to the Plan as needed to maintain its relevance and usefulness.*<br><br>While some of these indicators will be captured in national surveys and statistics as above, monitoring actions that should be taken at regional level by the ROG would include:<br>• Monitoring and reporting of regional level indicators that are captured as part of local government surveillance, surveys and annual reporting.<br>• Liaising with the regional Drought and Innovation Hub to ensure key indicators for the region are captured and provided over time.<br>• Recording case studies of changes made and benefits evident, because of actions taken from plan implementation. |

**FDF Standard Indicators**

**Outcome level:** Success measures and intermediate outcomes 2–4 years

**Actions have been taken based on this Plan**

- The Plan has had elements implemented.
- Primary producers and businesses supported to improve their sustainability and resilience.

**Decisions have been made to implement**

- Regional representatives have considered and planned incremental, transitional and transformational opportunities to strengthen resilience.
- Identified actions, pathways and opportunities (including innovative and transformative) to improve regional drought resilience, mitigate risks and adapt to change.
- Communities use relevant data and information to better understand their resilience to plan for drought.

**Capacity has been developed**

- Regional leaders are in a stronger position to implement strategic actions, adapt to change and take advantage of opportunities to build economic resilience as they arise.
- Partnerships, networks and engagement are built between stakeholders managing natural resources.
- Increased community understanding of the region's current and future drought resilience, considering the region's unique economic, environmental and social characteristics.
- Natural resource management capability is improved across region.

**Regional Stakeholders are involved**

- Plans have buy-in from key stakeholders in the region.
- The number of, and participation in, local networks and programs to enhance drought resilience increases.
- Communities share knowledge, collaborate and partner with government more often to build drought resilience.
- Greater sharing of learnings related to drought resilience between communities.

**Specific Regional Indicators**

**The achievement of Key Pillars to underpin the achievement of objectives are:**

(a) Drought monitoring, early warning systems and plans for responses are being developed and refined.
(b) Those most vulnerable and at risk of droughts have been identified and steps taken to address their vulnerability.
(c) Measures have been initiated to limit the impacts of and respond better to drought.

**Action steps have been taken in line with the Action Plan tables around the key outcome areas of:**

- People, culture and community
- Economy
- Landscape and natural environment
- Infrastructure and built environment

Implementation steps have been undertaken as per the Communication engagement table.

**Evaluation Approach**

**Monitoring actions that should be taken at a regional level by the ROG include:**

- Recording of steps taken, actions initiated, and resources gained that have been triggered by the Plan framework, strategies and planned actions.
- Annual reporting and review of plan implementation, engagement, participation, actions, barriers and opportunities to regional stakeholder organisations and government – and changes to the Plan made as needed to best meet regional needs.

Should external evaluation be undertaken, as well as taking the national data, above information and annual review into account (against planned actions), a range of regional stakeholders should be interviewed/surveyed to gauge their understanding, engagement and actions they have taken because of Plan guidance and initiatives.

**Types of questions should include:**

- Their level of awareness and understanding of the Plan – and how aware they think others are.
- How invested they are in engaging with other stakeholders around the Plan implementation.
- How confident they are that they have the skills and resources to make changes highlighted.
- What decisions and/actions they have taken – or aware of – that have been initiated because of the Plan.
- How the Plan has impacted on extra resourcing or support to the region to improve drought resilience.

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**Evaluation Approach**

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- How they think the Plan has added value and made a difference in increasing drought resilience in the region.
- What is working and what needs to change with respect to the Plan and its effective on-going implementation.
- Organisations nominated for actions in the Plan including for the communication engagement activities, should also be interviewed to review what was undertaken, how it was done, what response was gained and, if not, why not.
- Case studies should be further captured/developed to understand/demonstrate the program logic/the theory of change and inform recommendations for changes/support needed to maximise the Plan effectiveness.

A critical part of an external review would be to find an on-going ROG who were invested in using the Plan as a framework towards improved resilience, outputs and actions arising and how well this was working towards the Plan's objective.

Such external reviewing should be taken annually for the first three years to provide lessons for plan development and implementation in other regions, then every three years.

# Endnotes


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