







The Drought Resilience Planning Program is jointly funded through the Australian Government's Future Drought Fund and Western Australia's Department of Primary Industries and Regional Development.

# ACKNOWLEDGEMENT OF COUNTRY

The Goldfields-Esperance Regional Drought Resilience Plan (the Plan) has been developed across the Goldfields-Esperance region and recognises the many Aboriginal language groups and traditional custodians that have been caring for Country and its lands and waters for thousands of years.

The Plan acknowledges the need to preserve and sustainably use water within the landscape to sustain healthy Country, cultural practices, values and determination. This Plan supports Aboriginal communities' right to safe and secure water supplies and aims to enhance First Nations' voices in decision-making and opportunities for economic development.

The Goldfields-Esperance Development Commission acknowledges the Traditional Owners of Country across the Goldfields-Esperance region.

We recognise the connection of Aboriginal peoples to the land, waters and community.

We pay our respects to Elders past and present and acknowledge Aboriginal and Torres Strait Islander peoples, communities and cultures living in the region.

Image: Salt Lake, Shire of Menzies

**Credit: Shire of Menzies** 

# ACKNOWLEDGEMENT IN ABORIGINAL LANGUAGES

For thousands of years, Aboriginal and Torres Strait Islander peoples have welcomed visitors to their Country as part of their cultural practices.

The Welcome, which serves to give permission to the visitors to be on their Country, is delivered through spoken language, song, dance, and at times a smoking ceremony. Adopting the practice of a Welcome to Country by Traditional Owners or custodians of the land, or an Acknowledgement of Country by non-Aboriginal or non-custodians of the land, demonstrates our recognition of Aboriginal and Torres Strait Islander peoples as the first peoples of this land and our commitment to culturally safe and inclusive ways of working.

As a continuation of GEDC's commitment to our reconciliation journey, we have our Acknowledgement to Country currently translated into ten of the 17 Aboriginal languages of our region.

We thank the Goldfields Aboriginal Language Centre and the language custodians for their contribution to this resource. Locations of languages are approximate and may not be based on traditional locations.

### MARTU WANGKA

Ngurra lampaju kulinyila Nga Goldfieldspa kamu Esperance-pa Development Commission-lu kulinyi ngurra waljajarra pararra Goldfieldspakamu Esperance wana nyuntutinyi kurnu parna kapi kamu ngurra walja. Ngayutinyipa kuntala kanyininyi parlparriku Martuku ngurra kamu kuruwarri kamu jilpi tuju juljujarnu kamu yungunku.

### **CUNDEELEE WANGKA**

Parna-lipitja Kulira Watjarni. Kawultjarrangurra Itjaparantja Tjanala Tjungungku Atatjurra-kulira Kanyintjakitja- nyinapayi, Kamitjantu panyangku Kamitjantu palya watjarni, wati minyma tjukurrpa kanyilpayinya tjananya, panya Kawultjarra-ngurra, Itjaparantala tjanala rawanguru nyinanyinara; parna, ngurra, kapimpa rawa nyina-nyinatja tjananya. Nganarna Kamitjantu, Arnanguku ngurrarra winki palya watjarni kaltja kurlu; munu Yirna-tjurta, irrititja-mpa kuwarritja kurlu-kurlu.

### NGADJU

Ngadjungarra ngurra nguntu wamurti.
Goldfields-Esperance Development
Commission-nya ngadjungarra nguntu
tartinyirri matayi wamurti pana katajala
Goldfields-Esperance region mathulu
tjukurrpa munjanguu pana, kapi and mathalu.
Ngadjungarra nguntu tartiny matayi pana,
tartiny ngaringin matayi yungarnkin matayi.

### WANGKATJA

Yintaanku parna. Goldfields-Esperance Development Commission yintaa Yarnangu Goldfields-Esperance-ngku tjanaku tirtu kanyila parna, kapi ka ngurra. Ngalipaku kulila Yarnangu ka tjanaku Tjukurrpa; ka nalpa pirni wanka ka ngalpa pirniku warrkanu.

### PITJANTJATJARRA

Wirrurl kanyilpai ngurra ka palu jana lintinyi. Anangu tjutaku kanima ngurra wirruku munu kapi, ngurra. Anangu tjuta wirru ngurra kanyilpai ka tjilpi tjuta irriti tjana pukalpa nyinapai.

### NYUNGAR

Goldfields-Kepa Kurl djandjoo koorliny.
Birdiya kaditjidjiny Noongar Moort boolarang
Goldfields – Kepa Kurl boodjar wer baalabang
ngadiny dandjoo yoodaniny Boodjar Kep wer
Moort. Ngalak kadidjiny ngalang kootadjinong
boola Moort-ak Ngalak kadidjiny ngalang
koota-djinong boola moort-ak.

### NGAANYATJARRA

Goldfields-Esperance Development
Commission ninti ngurra kanyilpa Kawutjarrangurra. GEDC ninti purlkanya manta lipi,
kapi puru ngurra. Pirni kurnta yanangu,
yanangu pirni-lu ngurra walykumunu
kanyinma puru lurrtjurring. Pirn-lu kurtarriwa
ngayuku kutjurlping katja puru ngula puru
kuwarring katja.



### TJUPAN

GEDC-tula yurrulykula yilta ngaarla parnajanu. Goldfields-Esperance region mantangkaya nyinanyi kapi, ngurra, parnaya kanyinyi. Respect-pala nintilku yiltajanalarti, Tjukurrpala janampa respect-amulku. Elders-tila respect nintilku, elders kuwarrija, elders-jaya yan wantingu nganananya.

### MADUWONGGA

Ruukulinu Ngurra Nangana The Goldfields-Esperance Development Commission ruukulinu ngurra kapi nangana nurraku, nurrapirni ngurra yungkarra nyinannyinangku mirrirringku nurra jirtu tawarra nyinannyinan. Ngalipaka The Goldfields-Esperance Development Commission pukurlpa wangkatjapirni jirtu yamatjirrin nyalpapirni, kaparlipirni tana kuwarri nyinan, tana pawurtu.

### NGALIA

Goldfields-Esperance Development
Commission ruukulilku Wangkatja pini Malpa,
Anang tjuta ngurrara Goldfields-Esperance
regiontjanu. Tjanalu tirtu kanyira parnaku,
kapiku, ngurraku, tjanalu kuturtu kurti
kanyira. Goldfields-Esperance Development
Commission kuntawiya kulilku, nyakula,
pukurlpa piniku kuwarri nyinarra, pukurlpa
nyalpa piniku tiwa nyinangu. Palunya.

# **DEFINITIONS & ACRONYMS**

TERM	DEFINITION
Drought	A prolonged period of abnormally dry conditions that negatively impacts on water availability in a region and, consequently, affects the economy – including missed opportunities for growth – and environment of the region, and the health and well-being of its residents.
Water Security	Ensuring that needs for water – encompassing quantity, quality, and affordability and access – can be met, over time and under changing supply and demand profiles. And, that this is achieved by investment coordination and operations that are economically efficient, financially and environmentally sustainable, culturally appropriate, and resilient to shocks.
Exposure	The degree to which a region and/or priority area/theme is affected
Sensitivity	The degree to which a region and/or priority area/theme is harmed
Impacts	Described as the consequence of exposure and sensitivity
Adaptive Capacity	The capability and capacity to adjust and manage impacts
Vulnerability	Summary risk assessment considering impacts (exposure & sensitivity) and adaptive capacity

ACRONYM	NAME
GEDC	Goldfields-Esperance Development Commission
RDRP	Regional Drought Resilience Plan
GE-RDRP	Goldfields-Esperance Regional Drought Resilience Plan
DPIRD Department of Primary Industries and Regional Development	
DAFF	Department of Agriculture, Forestry and Fisheries
DVA	Drought Vulnerability Assessment
DWER	Department of Water and Environmental Regulation
FDF	Future Drought Fund

ACRONYM	NAME	
GEWSG	Goldfields-Esperance Water Security Group (Project Advisory Group)	
GVROC	Goldfields Voluntary Regional Organisation of Councils	
RCA Regional Climate Alliance (a sub- committee of GVROC)		
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences	
GAWSS	Goldfields and Agricultural Region Water Supply Scheme	
CWSP Community Water Supplies Partnerships program		
WDD	Water Deficiency Declaration	

Image: Malcolm Dam, Leonora

Credit: Jarrad Seng

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	VULNERABILITY

# **FOREWORD**



Kris Starcevich

Chief Executive Officer

Goldfields-Esperance

Development Commission

"In a predominantly arid region, access to water underpins the economic diversity and liveability of our communities and is crucial to sustaining and protecting the landscapes that make our region unique."

Economically and culturally diverse, the Goldfields-Esperance region covers a vast and remote landscape spanning a third of Western Australia. It is home to over 58,000 people and 17 distinct Aboriginal language groups. Mining, agriculture and tourism drive strong local economies and support the livelihoods of our regional communities.

Climate change and drought present new challenges to our communities, industries and landscapes, reshaping the way we live and work within the region. Planning how we prepare for future climates is central to ensuring continued economic and social prosperity.

Regional and remote communities across the region have been forward thinking in their approach to climate change, resulting in significant work and collaboration to date. The Goldfields-Esperance Regional Drought Resilience Plan (the Plan) builds on this work and aims to be a foundational document to guide a long-term and coordinated approach to mitigating the impacts of climate change and drought.

In a predominantly arid region, access to water underpins the economic diversity and liveability of our communities and is crucial to sustaining and protecting the landscapes that make our region unique. As such, achieving water security to build the region's resilience in preparation for future climates is at the core of this Plan.

The impacts of changing rainfall patterns, temperatures and extreme weather events will affect communities across the region in various ways and a coordinated, collaborative and regionally-led approach is essential to drive meaningful outcomes.

The region is well prepared to work collaboratively to mitigate the risks and harness the opportunities presented by future climates with effective partnerships in place, such as the Goldfields Voluntary Regional Organisation of Councils, a strategic alliance of nine Goldfields-Esperance local governments committed to effecting positive change.

This work has considered the vulnerabilities and opportunities of the region and is informed by the experiences, perspectives and expertise of First Nations groups, communities, industry, Local Governments, and other State government agencies, who have shared their priorities to build a more resilient region.

These priorities focus on preparedness rather than reactive response, presenting actions that aim to place the region in a position to enable economic growth, protect social and cultural wellbeing, sustain healthy landscapes, harness emerging opportunities and respond dynamically to future climates.

The Goldfields-Esperance Development Commission is grateful to the individuals and organisations who shared their knowledge in the development of the Plan. The GEDC is committed to delivering meaningful outcomes through the actions presented and looks forward to working with a concerted and collaborative approach towards a more resilient and prosperous future.

THE N

Kris Starcevich Chief Executive Officer Goldfields-Esperance Development Commission



# **EXECUTIVE SUMMARY**

The Goldfields-Esperance Regional Drought Resilience Plan provides a foundation to identify, inform and guide actions to achieve water security and drought resilience across the region.

Jointly funded by the Department of Primary Industries and Regional Development (DPIRD) and the Federal government's \$5 billion Future Drought Fund (FDF), this Plan builds on the region's aspiration to achieve water security through a shared vision.

The Plan should be read in conjunction with the Drought Vulnerability Assessment (DVA) for the region, which provides evidence of likely future climate trends, and sectoral exposure, adaptive capacity and vulnerability. The DVA underpins the priorities and actions identified.

Approximately 170 individuals across 60 organisations were engaged through the development of this plan. During the consultation process, four clear thematic outcomes emerged that together support the objectives of the Plan and the priorities and aspirations of the region.

These thematic outcomes are:

- · Informed, Empowered Communities
- · Positioned for Growth
- · Efficient and Resilient Water
- Innovative Futures

Underpinning these thematic outcomes is the fundamental principle of Healthy Landscapes, which reflects the significance of conserving and restoring landscapes to sustain healthy water resources into the future.

Throughout consultation, a strong focus emerged on future-focused solutions that would achieve preparedness for a range of climate scenarios. Stakeholders and communities sought responses that enhanced their empowerment and authorship of solutions and almost universally identified collaboration as a mechanism to achieve this.

This plan includes actions to achieve these aspirations by addressing key water security and drought resilience priorities across seven areas. These areas of action will help build understanding, foster relationships and increase capacity across the region to build more sustainable, resilient and thriving communities.

Water security is a significant economic enabler and key driver of regional liveability, including social well-being and cultural connection. As the region's climate, water requirements and availability evolve, further work will be required to ensure the sustainability and prosperity of Goldfields-Esperance communities and industries. This Plan is intended to be a living document and will be reviewed and monitored over time to ensure it continues to meet the needs of the region.



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### **INFORMED, EMPOWERED COMMUNITIES**

Building and enhancing localised, regionally relevant knowledge of water resources and policy to empower communities



### **POSITIONED FOR GROWTH**

Ensuring sufficient capacity and agility to capture emerging opportunities and support growth



### **INNOVATIVE FUTURES**

Harnessing innovation and research and development to create regionally-relevant solutions for future scenarios



### **EFFICIENT & RESILIENT WATER**

Image: Greater Western Woodlands, near Norseman

# INTRODUCTION

Drought is an enduring feature of the Australian landscape. In Western Australia, climate change projections indicate that the state will experience drying conditions, with increasing variability of rainfall and longer periods of more severe droughts.

With terrain that stretches from the temperate coastal sandplains of the south-east to the arid interior, the Goldfields-Esperance region extends across a vast and remote landscape where dry conditions and climate variability are a recurring feature.

To better prepare for, and respond to, these changing climates, the Australian Government is supporting communities and industries to implement actions that build regional Australia's resilience to drought.

### THE REGIONAL DROUGHT RESILIENCE PROGRAM

The FDF is an Australian Government initiative to help regional communities become more prepared for, and resilient to, the impacts of drought.

The Regional Drought Resilience Planning (RDRP) program is jointly funded by the FDF and DPIRD and brings together regional organisations, Local Governments, communities and industry to prepare for future drought risk and identify priority actions to build drought resilience (Department of Agriculture, Fisheries and Forestry, 2025 and Department of Primary Industries and Regional Development, 2024).

These plans develop a coordinated, community-led and evidence-based approach to assess the historical and projected future impacts of drought, and identify the region's vulnerabilities, priorities and adaptation pathways against a range of future climate scenarios.

The Goldfields-Esperance Plan has a strong focus on achieving water security, which is recognised by the region as a key vulnerability and an enabler to building more drought resilient communities, landscapes and industries.





# DROUGHT RESILIENCE IN GOLDFIELDS-ESPERANCE

For many Goldfields-Esperance communities, the pursuit of water security is deeply embedded in their sense of self. Historically, water has always been an economic enabler and a key driver of achieving and maintaining liveability outcomes.

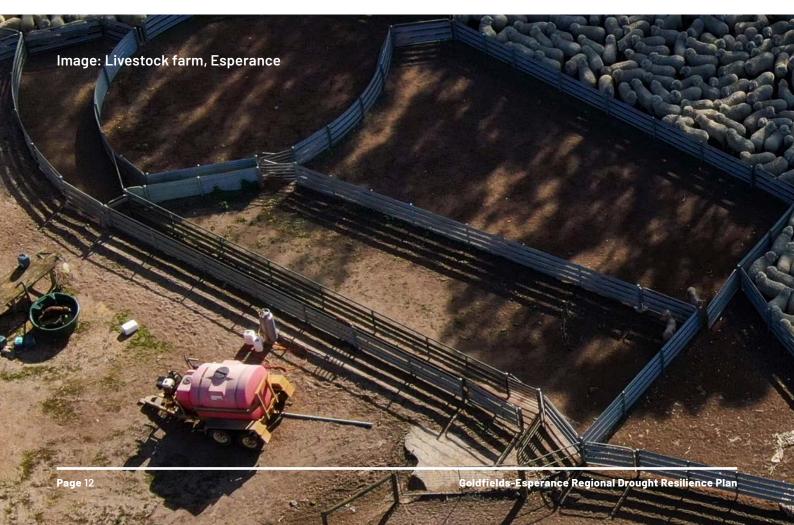
For Aboriginal peoples, waterways and places of water are integral to the ways in which they engage in cultural exchange, source food and navigate the landscape. Significant sites of storytelling they are also created by and the home of Spirit Beings (Curtin University & Umwelt 2023).

Both the region's more arid interior and southern coastal stretches have a long history of lived experience with drought and dry conditions, however climate change is changing the region's landscapes and communities' experiences with Country. The visual impacts of a drying climate and declining availability of water resonated strongly with stakeholders, and many consulted for this plan noted concerns about lakes and waterbodies drying up, less native plants flowering and trees dying (GEDC 2024a). This in turn may impact certain cultural practices, including hunting and is also encouraging pest species, such as camels, to venture closer to remote communities, impacting the natural environment and damaging built infrastructure in their wake.

In a predominately arid region, the life-sustaining properties of water are often brought into sharp focus. Prior to the construction of the GAWSS, or Golden Pipeline, the 30,000 inhabitants of the Goldfields region relied on insecure, inadequate surface and ground water. Essential not only for life, but for processing the precious minerals mined in the region, water was literally more expensive than whiskey.

When the 566km long pipeline connecting freshwater from Mundaring Weir to Kalgoorlie was completed in 1903, it was the longest pipeline in the world. The secure provision of freshwater enabled economic activity and growth throughout many inland communities and its importance to the economic and social fabric of Western Australia was recognised by its inclusion on the National Heritage List (Water Corporation 2022).

This acute focus on the necessity of water to sustain both life and industry, coupled with the region's isolation, has led to a culture of practicality, innovation and problemsolving, particularly for those peoples and communities not connected to the GAWSS. The adaptive capacity of the region, its communities and primary producers was reflected throughout the consultation process by the strong desire of communities to be agents of positive change in achieving water security (GEDC 2024a).



Despite the region's willingness to adapt to change, the sheer isolation and low population base of Goldfields-Esperance presents challenges for Local Governments and communities, making it difficult to deliver required services in an efficient manner. Local Governments are often positioned as a first responder during emergency events or natural disasters, such as bushfires. In the Shire of Dundas, which has a population of less than 800, the volunteer brigade is often a first responder for bushfires that occur across its more than 90,000km2 landmass.

The logistics of managing emergencies across these vast distances means that strategic planning to ensure adequate and appropriate resources are located across the region is both challenging and expensive (GEDC 2024a). This scenario is familiar to most of the communities across the region, particularly where poor access to fit-for-purpose water adds an increased layer of complexity.

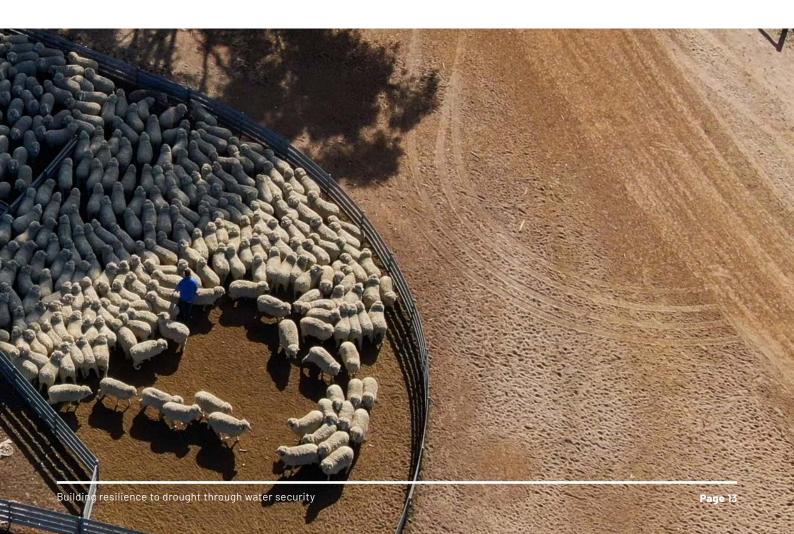
Throughout consultations, geographic isolation was raised as a primary vulnerability for communities and Local Governments. For many communities, there is only one road in and out, meaning that any disruptions to road networks such as fire or flood, renders a community cut off. For those

towns, such as Menzies, that are supplied water exclusively via trucks, road network disruptions leave towns and people without water (GEDC 2024a).

While climate change means many of the region's communities will see a reduction in annual rainfall, drought is not the only expected impact. Increased extreme heat events, more intense fires, unpredictable rainfall timings and the impacts of flooding were also identified as key vulnerabilities (Aither, 2025).

Across the pastoral landscapes, stakeholders identified that the relationship between prolonged drought periods and vegetation decline are having significant impact on runoff trends. With more frequent and intense rainfall events, a lack of vegetation is leading to increased flooding and contributing to landscape degradation (GEDC 2024a).

This highlights the intrinsic link between drought and other climate vulnerabilities. Communities have been clear that building resilience means considering these impacts as part of the broader climate change context and planning how to respond to these interconnected climate events is central to building their resilience (GEDC 2024a).



# **OUR PLAN**

Communities in the Goldfields-Esperance region have a long history of working collaboratively to forge solutions. This Plan builds on work undertaken by the region for the region by focusing on the key climate vulnerabilities identified by communities and stakeholders.

In 2007, GVROC a strategic alliance across nine Local Governments, was formed to work together to drive solutions to enhance and benefit the region. Recent work has focused on climate preparedness and through the WA Government's Regional Climate Alliance Program, a Goldfields-Esperance Regional Climate Alliance was formed as a sub-committee of GVROC. As part of a Climate Risk Assessment and Adaption Plan for Goldfields-Esperance, completed in 2023 by GVROC with support from GEDC, stakeholders across the region identified water access and supply as the primary climate vulnerability (Ironbark Sustainability, 2023) (GVROC, 2023).

Access to fit-for-purpose water is increasingly becoming a barrier to economic development, diversification and liveability outcomes in the Goldfields-Esperance region. Insufficient infrastructure and supply in the region are

disproportionally impacting socio-economic disadvantage and health inequality. This is expected to be exacerbated by the impacts of climate change (Ironbark Sustainability, 2023).

In 2023, a Goldfields-Esperance Water Security Group (GEWSG) was formed with endorsement from the then Minister for Water, the Hon. Simone McGurk MLA, comprised of members from GVROC, GEDC, Water Corporation and the Department of Water and Environmental Regulation (DWER). The group's aim is to drive water security solutions and investigate actions to optimise the existing water resources to fit-for-purpose uses. The GEWSG is the Project Advisory Group for the Goldfields-Esperance Regional Drought Resilience Plan.

The region's aspirations to achieve water security for their communities and industries has shaped the focus of this plan. A shared vision, regionally relevant definitions and agreed outcomes support this Plan by providing the foundation for practical, collaborative and achievable actions to build water security and a climate resilient region.





Image: Regional water infrastructure, southern sub-region



### **Definitions**

Establishing a universal definition of drought encompasses the impacts of drought for all people and landscapes is challenging. Therefore, the Plan presents a regionally specific definition of drought that highlights the experience of the Goldfields-Esperance region and will support the Plan in achieving the region's vision. As drought and water are inextricably linked, a regionally specific definition of water security was also developed.

These definitions are informed by other nationally accepted terminologies including the Australian Government's definition of water security, the Bureau of Meteorology and the Defining Drought in Western Australia report, produced by Curtin University (Aither, 2023) (Bureau of Meteorology, 2025) (Mastrantonis, 2022).

The proposed definitions were tested with the GEWSG and GVROC to ensure the phrasing resonated with stakeholders' lived experiences of drought and understanding of water security challenges. It was important the definitions aligned to and supported the vision, aspirations and objectives of the Goldfields-Esperance Regional Drought Resilience Plan.

Defining what drought and water security looks like for the region helps assess the region's vulnerability and resilience to these events. Stakeholders were asked to reflect on what a resilient region looked like in the context of these definitions, and liveability and opportunities for growth were highlighted as key components of the region's resilience.



Image: Regional water infrastructure, Esperance

A prolonged period of abnormally dry conditions that negatively impacts on water availability in a region water availability in a region and, consequently, affects the economy - including missed opportunities for growth - and environment of the region, and the health and well-being of its residents.

WATERSECURITY

Ensuring that needs for water - encompassing quantity, quality, and affordability and access - can be met, over time and under changing supply and demand profiles. And, that this is achieved by investment coordination and operations that are economically efficient, financially and environmentally sustainable, culturally appropriate, and resilient to shocks.

### CASE STUDY - SHIRE OF MENZIES

# **ACCESS TO POTABLE WATER**

With limited water resources and a reliance on a singular source of potable water, for many Goldfields-Esperance communities maintaining access to fit for purpose water is crucial – particularly during emergency events.

Every day, up to three trucks make the 260km round trip from Kalgoorlie to fill Menzies' sole 200,000L tank with potable water supplied from the GAWSS. It's the only source of water for the town's 575 residents, with no access to suitable groundwater and limited ability to capture what rain does fall. But with only one sealed road in and out of the small mining and pastoral town, disruptions to the Goldfields Highway can literally leave Menzies without water.

In late 2023, with multiple fires burning across the landscapes surrounding Menzies, the highway was closed for several days, stranding around 50 freight trucks. With water trucks unable to reach Menzies, the only potable water available to the town and its additional hundred stranded travellers, was the 200,000L tank.

Shire President Paul Warner said the closures highlighted the precarious situation this limited storage capacity put the town in.

"It was very scary when those fires came through... we just don't have a lot of options and that's the only way water gets in," he said.

When the highway was eventually reopened, the Shire estimated only a foot of water remained in the tank. Water availability is front of mind for Menzies residents, and the water trucks travelling through town every day are a visual reminder of just how vulnerable the town's supply is.

Mr Warner said a key priority is increasing the town's water storage capacity to improve its ability to respond to unforeseen events and empower the community to unlock new opportunities.

"It's a big constraint to economic development, we've been told there's no more development possible," Mr Warner said.



The Shire is working hard to make the most of every drop of water, installing guttering on public buildings and in collaboration with the Goldfields Voluntary Regional Organisation of Councils (GVROC) is pursuing the refurbishment of an old dam for non-potable use. Securing this resource will reduce the demand on potable water and enable the Shire to improve the town's public amenity by planting native trees and increasing green spaces.

Despite being an important centre for mining and exploration, and a key stop for travellers on the Goldfields Highway, Shire Acting Chief Executive Peter Bentley said small Local Governments like Menzies lacked the resources to make significant investments into water.

"Commercially we're up against it," he said.

"We just don't have the critical mass (of people) to be investing in big infrastructure."

However, the Shire is keeping a future focused approach, and believes opportunities for investment into alternative water solutions, such as wastewater recycling could be a viable option if the right partnerships emerge.

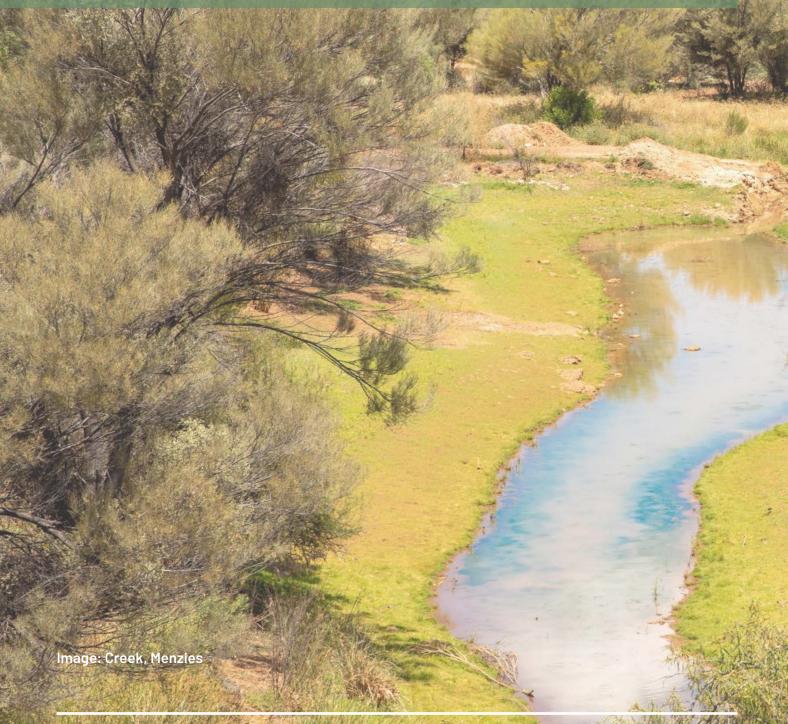


Image: Town Hall, Menzies



# PLAN VISION

A vibrant region underpinned by sustainable access to diverse water sources that enhance regional resilience by managing risk and enabling growth





# CONTEXT

### **About the Region** GIBSON DESERT SHIRE OF NGAANYATJARRAKU SHIRE OF WILUNA The Goldfields-Esperance **GREAT VICTORIA DESERT** region is located in the Leinster south-eastern corner of SHIRE OF LAVERTON Western Australia. The largest in WA, our region covers an expansive land area of over SHIRE OF MENZIES Menzies • Tjuntjuntjara 950,000km<sup>2</sup>. That equates to over 148 Perth Metropolitan Areas! Kambalda Esperance COOLGARDIE NULLARBOR PLAIN 14,558 people SOUTHERN OCEAN Ravensthorpe Road Hopetoun Rail Archipelago of the Recherche SHIRE OF Airport / Airstrip RAVENSTHORPE Port Kalgoorlie-Bouder



58,134\*

People call our region home



17
Indigenous languages and dialects



36 years
Median age



9.5%
Aboriginal and/
or Torres Strait
Islander

### Population per Local Government Area\*

30,991 people

Great Western Woodlands

Coolgardie	3,779	
Dundas		723
Esperance	14,558	
Kalgoorlie-Boulder		30,991
Laverton		1,444
Leonora		1,737
Menzies		577
Ngaanyatjarraku		1,482
Ravensthorpe		2,280
Wiluna		563

Sources: REMPLAN 2021, \*2024 ABS Estimated Resident Population

# SIGNIFICANT MINING REGION

One of the most significant mining regions in Australia, producing commodities including gold, nickel, copper, lithium, iron ore, rare earths and critical minerals. The mining sector contributes \$27.7 billion in regional economic output.

# UNIQUE NATURAL ASSETS

A diverse landscape with distinct climates and unique ecosystems, including desert landscapes, spinifex grasslands, mulga woodlands and coastal heath and scrublands. The Great Victorian Desert is the largest dune desert system in Australia, while the Great Western Woodlands are the largest unfragmented temperate woodlands in the world, with 20% of Australia's plant species. In the region's south, the Fitzgerald Biosphere is a biodiversity hotspot with an incredibly high level of endemic species under threat.

# STRONG AGRICULTURAL SECTOR

The Southern sub-region has a high value broadacre industry, with cropping, livestock, fisheries and forestry industries. The sector contributes \$978 million in economic output and is a major employer of the Southern sub-region. Pastoral activities extend across the Central and Northern sub-regions.

Image: Lake Lefroy, Kambalda Credit: Jarrad Seng

# KEY STATISTICS



\$40 billion

Economic Output (2024-25)



\$267,763

Per Capita Gross Regional Product



\$389,022

Per Worker Gross Regional Product



3.3%

Unemployment Rate (Dec 2024)



37,696

Jobs in the Region

### **TOP 10 INDUSTRY**

Sectors by Economic Output

\$27 billion Mining Manufacturing \$4.4 billion \$1.8 billion Construction Rental, Hiring & Real Estate \$1.2 billion Agriculture, Forestry & Fishing \$978 million Transport, Postal & Warehousing \$850 million Electricity, Gas, Water & Waste \$533 million **Public Administration & Safety** \$531 million Healthcare & Social Assistance \$490 million **Education & Training** \$378 million

> Sources: REMPLAN 2025 and Department of Employment and Workplace Relations (DEWR), Small Area Labour Markets (SALM). (December Quarter 2024 data)

# Water in the Goldfields-Esperance Region

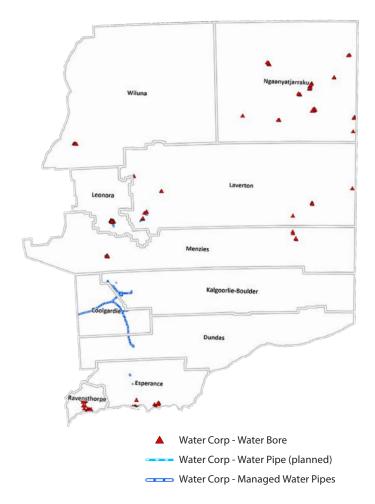
### **GROUNDWATER**

Groundwater is the primary potable water supply for towns and industries outside of the Central Goldfields, including Ravensthorpe, Esperance, Leonora, Laverton, Wiluna and the communities across the Ngaanyatjarra Lands (Figure 2). Groundwater is an important self-supplied water use for industry and is also the primary non-potable water source across the region. Of the 135 gigalitres per year of groundwater estimated to be abstracted in the region, more than 90% is for mining use and dewatering (Department of Water and Environmental Regulation, n.d.). Bores accessing shallow aquifers and deep paleochannels are common where towns, mines and pastoral stations are located and are often coupled with desalination or reverse osmosis units where groundwater is too saline (Aither, 2025).

### FIGURE 1

Water Corporation owned assets across the Goldfields-Esperance region of Western Australia.

Sourced from Water Corporation



### **THE GAWSS**

The GAWSS sources water from Mundaring Weir in Perth and services customers across the Wheatbelt and central Goldfields, including Kalgoorlie-Boulder, Coolgardie, Menzies and Norseman (Figure 1). The GAWSS, operated by the Water Corporation, supplies approximately 28GL/year of potable water across 9,601km of water mains. The scheme supplies more than 100,000 residential customers (Water Corporation, n.d.).

The scheme is connected to Perth's Integrated Water Supply System which can draw on groundwater and seawater desalination in addition to surface water in Mundaring Weir if needed (Department of Planning; WA Planning Commission 2015). The 2024-2025 state budget included an initial \$15 million investment in upgrades to the GAWSS to increase water security, which leverages desalination investment in Perth (Government of Western Australia 2024). A further \$543 million has been committed in the 2025-2026 State Budget to increase the capacity and reliability of the GAWSS (Government of Western Australia 2025).



Image: Esperance Borefields



Image: Rainwater tank

### **NON-POTABLE RESOURCES**

Non-potable water supplies are highly dependent on local context across users and landscapes of the region (GEDC, 2024a). In the larger population centres, wastewater treatment and stormwater capture and reuse have been utilised for a number of years. Desalination in Esperance has also been identified as a potential source of water for industrial use, and potentially potable water and other future industries (GEDC, 2024a).

Barriers to the adoption of non-potable water alternatives have left many communities and industries in the region reliant on potable water supplies for non-potable activities. The access to and use of non-potable water supplies are an important opportunity to increase water security in the region.

# Menzies Men

### **SURFACE WATER**

Surface water resources are scarcely utilised throughout much of the region, inhibited by inconsistent or low rainfall patterns and high evaporation rates particularly in the Central and Northern Goldfields. However, surface water assets, primarily captured in dams are an integral resource in the Esperance and Ravensthorpe Shires where broadacre enterprises and associated rural communities exist.

The pastoral industry accesses a mix of surface and groundwater resources, informed by local conditions and resource availability (Aither, 2025).

### FIGURE 2

Groundwater bores and resources across the Goldfields-Esperance region of Western Australia.

Sourced from the National Groundwater Information System.





Image: Recreational spaces require fit-for-purpose water supply to maintain regional livability.

# CASE STUDY - SHIRE OF LAVERTON

# ENHANCING NON-POTABLE WATER

Investing in alternative water supplies to reduce the use of potable water for non-potable uses is enabling Local Governments to unlock economic potential and improve liveability.

Over the next few years, thousands of trees will be planted around the town of Laverton as the Shire enacts plans to make the northern Goldfields town greener, cooler and more liveable.

More than 400 mature trees have already been planted across Laverton and artificial turf is gradually being replaced with real grass. The aim is to activate spaces in the town's centre, providing cool public places for the community, while improving amenity.

The project is possible due to collaboration between Water Corporation and the Shire to identify alternative, non-potable water supplies that reduce the pressure on the town's drinking water supply.

Until recently, the Shire only had access to potable water provided by the Water Corporation's managed borefields for the purposes of irrigation. Shire CEO Phil Marshall said this had meant the Shire was using precious potable water to green the town's sports oval. Limited water supplies also meant the Shire was constrained in its ability to maintain parks and streetscapes.

"It came through very clearly when we started looking at this that Shire could actually work with Water Corporation to achieve localised solutions that suit our community"

Phil Marshall
Chief Executive Officer, Shire of Laverton



In partnership with Water Corporation, three additional bores were identified as suitable to supply non-potable water and seed funding from Water Corporation allowed two bores to become operational. The Shire has now allocated additional funds to equip a third bore.

Building an effective working relationship with Water Corporation was pivotal to the project's success and allowed the Shire to undertake some of the works required to achieve efficiencies.

"It came through very clearly when we started looking at this that the Shire could actually work with Water Corporation to achieve localised solutions that suit our community," Mr Marshall said.

"That required flexibility and an understanding of each other, but we can certainly see the benefit of working together and building that relationship."

It's a project that is also positioning the town for future climates and an anticipated increase in extreme heat days. Thousands of trees will be planted in Laverton over coming years as part of GVROC's Urban Greening program, which is aimed at increasing urban canopy and biodiversity to help build more resilient communities across the Goldfields-Esperance region.

Mr Marshall said the greening of the town had been a priority for the community for many years and was already building morale amongst residents.

"You can't underestimate the importance of this to the community. We're on the edge of the desert, but people can see the changes happening and there is such a positive feeling about it," Mr Marshall said.

The additional water supply and town greening project also enables the Goldfields town to capitalise on increased tourism opportunities emerging from the sealing of the Outback Way, a 2700km road connecting Laverton to Winton in Queensland.

"If we can encourage people to stop in Laverton for half a day or even overnight then that's great for the town," Mr Marshall said.





but tested against and reflective of the region's lived experience.

# The Plan has three foundational elements:



### **DROUGHT VULNERABILITY ASSESSMENT (DVA)**

Developed through the vulnerability assessment framework established during the WA pilot Regional **Drought Resilience Planning** program (Aither, 2025).



### **COMMUNITY CONSULTATION PROGRAM**

Designed to capture the priorities and needs of stakeholders representing varying industries, communities, and interests from across the region to ensure the plan is community-led and regionally specific (GEDC, 2024a).



### **ACTION PLAN**

Captured in the response section of this Plan, presenting the priorities, actions, and implementation pathways across a range of future climate scenarios to build water security and address drought resilience.



# **Defining Boundaries**

Due to the vastness, complexity and diversity of the region, the Plan approaches drought resilience at a regional, sub-regional and community scale. Sub-regional boundaries were developed collaboratively with the GEWSG and GVROC and are determined by the status of potable water supply, perceived climate trends and dominant industry presence at a Local Government level. Sub-regions for the purpose of this Plan are:

### NORTHERN SUB-REGION

Includes the Shires of Wiluna, Ngaanyatjarraku, Laverton and Leonora. Potable water supply is mostly sourced from bores and the dominant industries are mining and pastoral. Climate trends involve long periods of dry conditions broken by short-lived, intense rainfall events.

### **CENTRAL SUB-REGION**

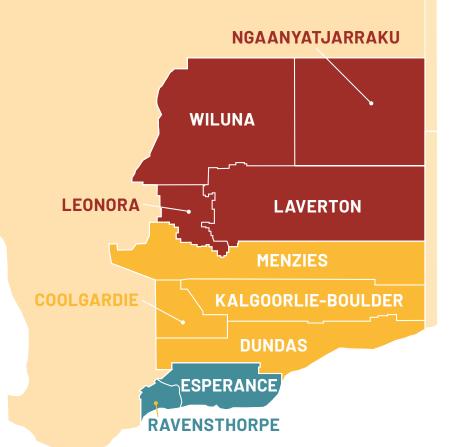
Includes the Shires of Menzies, Coolgardie, Dundas and the City of Kalgoorlie-Boulder. The primary potable water supply is the GAWSS, with a strong presence of mining and pastoral industries. Climate trends involve more distinct patterns on a local level.

### **SOUTHERN SUB-REGION**

Includes the Shires of Esperance and Ravensthorpe. Primary potable water supply is from bores, and the dominant industry is broadacre agriculture, with some mining presence. Climate trends involve shorter, more intense cycles between wet and dry conditions.

### FIGURE 3





# Stakeholder Engagement

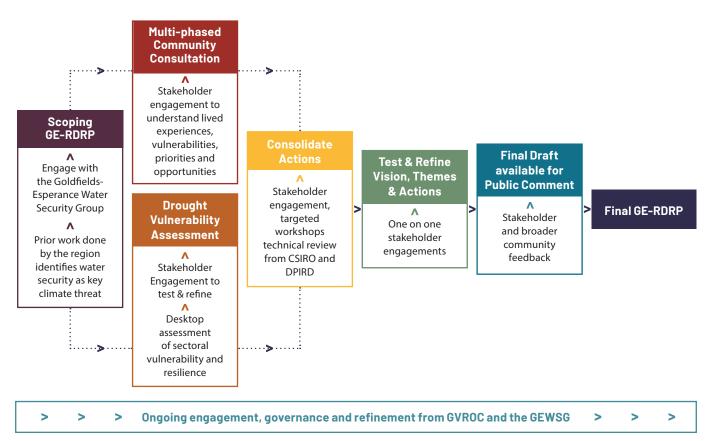
The Plan was developed through a community-led process to ensure the Plan was regionally relevant, aligned to lived experiences and could deliver positive outcomes for the communities, industries and landscapes of the region.

Engagements aimed to share the intent of the Plan and provide the opportunity for stakeholder's perspectives and priorities to be captured and inform the development and direction of the Plan.

Throughout the development of the Plan, approximately 170 individuals across 60 organisations were engaged in an ongoing process, outlined in Figure 4 below.

FIGURE 4

A multi-phased stakeholder engagement process was undertaken to develop the GE-RDRP









Images: Regional Drought Resilience Plan Consultation Road Trip

# CASE STUDY - WONGUTHA CAPS

# WATERSMART FARMS TRIAL

An innovative trial to unlock alternative water supplies is securing a sustainable resource for a rural school and delivering added benefits for on farm irrigation and emergency water supplies.

The Wongutha CAPS training farm near Esperance is trialling innovative technology to unlock alternative water supplies by testing a small-scale, solar-driven, Brackish Water Reverse Osmosis (BWRO) desalination system.

The school caters for Year 11 and 12 Aboriginal students, predominantly from remote towns and communities throughout Western Australia, with up to 76 students boarding and 10-12 staff living onsite.

Wongutha Facilities Manager Kris Nostrini said when the site was at capacity, the school consumed around 30,000 litres per day.

The school was previously supplied by rain capture from roofs and poor-quality groundwater, which was under increasing pressure to balance the water demands of training facilities and farm operations.

"In the last five years the water quality had reduced dramatically due to an increase in salinity, and the ageing infrastructure struggled to supply the volume needed," Mr Nostrini said.

"We were in dire need of finding an alternative source - trucking in water was the most likely option."

The small-scale desalinisation unit has proven to be effective in a decentralised, rural, small-system setting and has been designed to produce 7.3ML of fresh water per annum.

"The small scale off grid desalination unit has revolutionised our water supply onsite. The system is able to supply up

to 30,000 litres a day which can offset our complete onsite usage," Mr Nostrini said.

This has led to added benefits for Wongutha school and provided additional water resources for on farm irrigation and emergency response supplies.

"Our rainwater supplies last longer and can be dedicated to higher quality needs."

"The brine produced by the desalination process is being used to irrigate salt bush and salt tolerant plants. We have seen a fantastic response to the extra water available for the plants."

"We also have the ability to supply quality water to surrounding landholders in time of drought or for emergency needs such as bushfires."

Part of the WaterSmart Farms program, the project has been a collaborative partnership between the School, the Department of Primary Industries and Regional Development (DPIRD), Water Corporation, Murdoch University and the National Water Grid Authority.

Through innovation and collaboration this project has enabled Wongutha Caps to establish a secure and sustainable water supply, improve its use of fit for purpose higher quality resources and unlock new opportunities to support the broader landscape and rural community to respond to drought and fire events.

"The brine produced by the desalination process is being used to irrigate salt bush and salt tolerant plants. We have seen a fantastic response to the extra water available for the plants."

Kris Nostrini Wongutha Facilities Manager

Image: Saltbush at Wongutha CAPS Credit: Kris Nostrini

# **Drought Vulnerability Assessment**

The DVA reviews the historic and likely future drought related impacts, water resources, availability and scarcity across the region. It also includes anecdotal evidence gathered during consultations that identify the region's lived experience with drought.

The DVA provides an assessment of key vulnerabilities by sector, which are used to highlight the varying exposures, sensitivities and adaptive capacities of different water users across the region. In addition, this enables inter-sector relationships and the influence of drought and water security on these relationships to be identified.

### THE SECTORS EXPLORED WITHIN THIS ASSESSMENT ARE DEFINED AS:



(c



Mining

Remote Communities

Community Water Supply Conservation & Land Management

**Pastoral** 

**Broadacre** 

The region itself was found to be highly vulnerable to changing climate conditions, with each sub-region facing unique challenges. Vulnerability by sector is highly variable and the relationships between sectors will influence individual water users' resilience. This assessment has served to pinpoint important gaps in the region's resilience and provides direction on where efforts of the plan should be focused and how.

The DVA serves as a robust evidence base that underpins the priorities and actions captured in the plan, detailed below. It is summarised below.



# **Exposure**

The DVA analysed 50th percentile scenarios of climate projections to 2050 to understand the likely rainfall, temperature and drought severity each sub-region will be exposed to in the future. While the southern sub-region is likely to experience the greatest decline in average annual rainfall, conversely the north-east of the region will see an increase up to 20% (Aither, 2025).

Changes in drought severity are closely linked to rainfall projections and the Southern sub-region will likely suffer the greatest increase in severity of drought events. However, across the whole Goldfields-Esperance region, temperatures are expected to rise by 1-2 degrees consistently. The frequency of extreme heat days will be a greater concern to communities and industries in the northern parts of the region, which already experience maximum temperatures that are on average higher than southern areas (Aither, 2025).

# Vulnerability

### TABLE '

### Summary of the Goldfields-Esperance regional drought vulnerability assessment by sector

EXPOSURE	SENSITIVITY	ADAPTIVE CAPACITY	VULNERABILITY
MINING			
Mines in the central sub- region will be exposed to declining annual average rainfall, with opportunistic summer rainfall. Mines in the northern sub-region are likely to experience longer extended dry periods broken by short intense rainfall events.	Most water dependent sources used for mining activities (deep and extensive paleochannels) are not sensitive to changes in rainfall, temperature, or potential drought occurrences.	As water security is generally dealt with up front through the identification of secure water there is little need for ongoing capacity to address changes in water supply.	Drought periods are unlikely to significantly impact the mining industry directly.  There are other water security vulnerabilities that stem from drought which require mines to manage the degree to which mining water use interacts or is perceived to interact with other water sources or water dependent values.
<b>CONSERVATION</b>	AND LAND MANAGEMENT		
There are large areas of conservation reserves, indigenous protected and/ or managed areas and Unallocated Crown Land (UCLs) across the region that are naturally adapted to drought, but climate change may mean significant changes to these asset's condition.	More prolonged and severe droughts can impact fire regimes, particularly in the central and southern sub-region, and demonstrate a dependency on sufficient water access to maintain and protect critical infrastructure, and environmental and cultural assets.  Increasing severity of large rainfall events in the northern and central sub-regions can impact runoff and recharge cycles and may contribute to erosion and landscape degradation.  Water insecurity and landscape degradation in culturally significant areas impact Aboriginal communities' ability to maintain traditional land management practices and connection to Country.	Adaptive land management is key to building landscape resilience.	Managing long-term climate variability is important for sustainability across land areas during drought and as climate changes.
PASTORAL			
Pastoralists in the west of the central sub-region (Nullarbor) and the northern sub-region are likely to be exposed to more severe	Severe droughts and extreme heat will affect pastoralists' ability to meet stock watering requirements, particularly if they have limited groundwater resources or rely on	Access to emergency water resources and adaptive farm management strategies are limited by pastoralists' remoteness and capacity.	Greater drought exposure will limit grazing availability and increase the vulnerability of pastoral land to long-term degradation.

droughts and reductions in

long-term average rainfall.

shallow aquifers.



### **REMOTE COMMUNITIES**

Remote communities are already exposed to significant water related risks. In the arid north region where these communities are located, climate change is expected to lead to increased rainfall and decreased drought severity. However, it is unclear what affect this will have on the groundwater supplies these communities depend on. Increased rainfall may also lead to flood impacts, including risks to critical transport infrastructure

Remote communities have a high sensitivity to water-related stress, compounded by other sensitivities including poor health outcomes, social connectivity and local economic opportunities.

Remote communities are some of the most socio-economically disadvantaged in the Goldfields-Esperance Region - climate risks are likely to compound these disadvantages and have a negative impact on liveability.

Water Corporation's Aboriginal Community Water Supply Program is supporting adaptive capacity through the provision of water services to remote Aboriginal communities and progressing infrastructure upgrades to deliver safer and more reliable water services Infrastructure uplift is critical to address water quality issues from contaminants and salinity issues and improve the condition and suitability of existing infrastructure.

Significant investment and planning are required to improve infrastructure.



### **COMMUNITY WATER SUPPLY**

Towns will experience increased supply pressure from a hotter, drier climate as well as increased demand in line with projected population and economic activity growth.

This presents a key risk to water supply in the Esperance area, driving reduced groundwater recharge and saline intrusion risks to coastal aquifers and putting pressure on treated wastewater to supply economic activity, parks, gardens and schools.

A hotter, drier climate will increase water supply and quality issues in small communities in the southern sub-region with limited groundwater and high reliance on rainfall. The Esperance area also remains vulnerable to these climatic effects.

Water supply and quality is a challenge for multiple small towns dependent on local groundwater and with limited freshwater sources, sporadic recharge, and declines in the availability of high-quality groundwater. Water carting is already required to supply potable water to some of these communities on a regular basis.

Significant infrastructure investment is needed to increase adaptive capacity to drought.

Improvements to sewerage and wastewater infrastructure are needed to increase use of recycled water and stormwater. Town water supply arrangements have been developed to manage some drought, high temperature and variable rainfall conditions. However, infrastructure uplift is necessary to adapt to future, increasing and sustained variable rainfall and high temperatures.

More frequent, extended and severe droughts will put demand pressure on the key supply schemes of GAWSS and Esperance, and on wastewater and storm water supplies used for non-potable uses as other availability of other climate sensitive sources is reduced.



### **BROADACRE**

Broadacre farming in the southern sub-region will be highly exposed to reducing average rainfall and increasing drought severity. Farmers in the far north of the southern sub-region near Salmon Gums and in the far west near Ravensthorpe will be the most sensitive to increased drought

These areas already receive relatively low rainfall and have lower yield potential than farming areas in higher rainfall zones closer to the coast.

Livestock producers in the low rainfall areas will be more sensitive to reduced rainfall with increased demand for fodder and water for animal welfare.

Broadacre producers generally have high adaptive capacity with a range of opportunities to improve the water efficiency and resilience.

Prioritisation of and investment in adaptive capacity measures is impacted by a range of factors including availability of capital. Broadacre is highly susceptible to drought with seasonal reliance on rainfall to achieve seasonal crop yields and maintain healthy stock.

Farmers in the north and west of the southern sub-region are expected to be particularly vulnerable to future droughts due to high exposure, high sensitivity and reliance on external emergency water resources.

### CASE STUDY - SHIRE OF DUNDAS

# **BUSHFIRE EMERGENCY RESPONSE**

Isolation, vast land areas and limited resources are challenges faced by remote Goldfields-Esperance Local Governments, who are often positioned as the first responder to emergency events that occur across expansive tracts of Western Australia.

The Shire of Dundas covers an enormous area of 93,000km2 - which includes a significant amount of Unallocated Crown Land (UCL), Reserves and Pastoral Leases. More than 700km of the Eyre Highway, the major freight and transport route connecting WA and South Australia, traverses the Shire.

However, with a small population, including around 380 rate payers and a volunteer fire brigade made up of six members, the Shire has limited capacity to plan for and respond to the increasing frequency of bushfire emergencies.

The sheer size of the region, and the need to protect significant infrastructure assets including the Eyre Highway, interstate rail, telecommunications and the digital fibre network, makes mitigation and response efforts incredibly important, but comparatively expensive.

Dundas Shire Chief Executive Officer Peter Fitchat describes the risks faced by the Eyre Highway corridor as national in scale but local in responsibility. He said historically the Shire has spent significant amounts of their operating budget on fire-fighting efforts, but the low revenue base of the Shire had meant that this has flow-on impacts to other areas of their budget.

The Shire is well positioned to respond to emergencies in a coordinated and strategic manner thereby increasing the

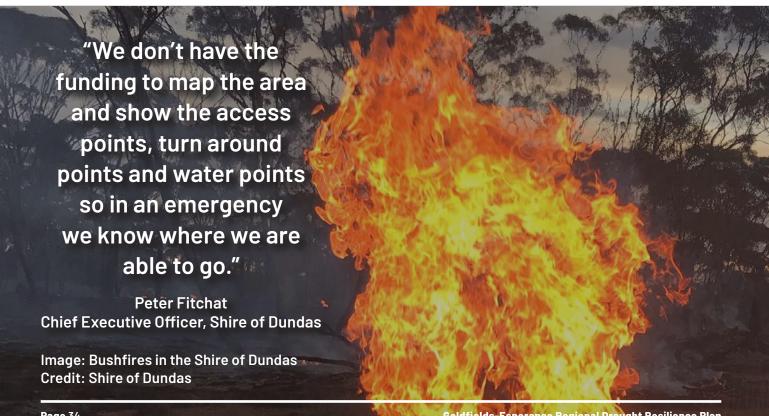
efficiency of effort, but on its own, lacks the resources to undertake the planning required for mitigation and response efforts.

"We don't have the funding to map the area and show the access points, turn around points and water points so in an emergency we know where we are able to go. Access tracks could be closed, or not maintained. This is a concern from a workplace Health and Safety aspect... it's dangerous to go into firefighting mode," Mr Fitchat said.

Some areas of the Shire require a 360km round trip with a tanker to reach the nearest water point and where no water is available, the Shire must use potable water from the GAWSS.

The Shire is seeking support to enhance existing and develop new water access points for emergencies, but recognises that greater strategic planning and collaboration across agencies would help to maximise cost efficiencies, improve coordination and enhance local preparedness.

"We would love to have the resources and a team geared up to properly address this, and to maintain those strategic access points, because the community sees it as vital to looking after significant State infrastructure and those natural assets like the Great Western Woodlands," Mr Fitchat said.



### CASE STUDY - TJIWARI PALYAKUWA

# WATER LICENSING AGREEMENTS

The Tjiwarl People, whose land lies in the Northern sub-region, have a spiritual relationship to water and the value that wetlands, rivers, springs, bushland and caves bring, including their cultural significance and the ecosystem benefits they provide (Department of the Premier and Cabinet, 2024). Tjiwarl land has been subject to a systematic process of granting rights to conduct mineral exploration, prospect and mine myriad mineral types, and rights to use Tjiwarl waters for mineral exploitation. As a result, Tjiwarl People were restricted from accessing resources traditionally used, and alterations occurred to the cultural landscape that were once part of Tjiwarl lands (Department of the Premier and Cabinet, 2023).

The Government of Western Australia entered into the Tjiwarl Palyakuwa (Agreement) as a result of three compensation claims that were filed by the Tjiwarl People against the State in 2020. The Agreement is a historical native title compensation settlement between the WA Government and the Tjiwarl Aboriginal Corporation and provides the Tjiwarl People with a package of benefits that compensate them for historical acts by the State that have impaired or extinguished their native title. The process undertaken is consistent with the WA Government's commitment to negotiated agreements in the state's Aboriginal Empowerment Strategy for 2021 to 2029.

"Water is life to Tjiwarl people and we have a responsibility to look after it. The Tjiwarl Agreement has given us a much better say in how mining companies manage water resources, and we hope that the productive relationships we are building with them means that this will continue into the future," Greg Ryan-Gadsden, Chief Executive Officer, Tjiwarl Aboriginal Corporation said.

The package of benefits includes the following important water related actions:

 An agreement to undertake a Tjiwarl Water Study to identify locations of water resources on Tjiwarl Country and their associated cultural, environmental and economic values. Following the Tjiwarl Water Study, a Tjiwarl Water Plan will be jointly developed.

- More access to water information relating to licenses and permits granted under the Rights in Water Irrigation Act 1914 (WA)
- A Tjiwarl specific process for the grant of water licenses under the Rights in Water and Irrigation Act 1914 (WA) has been agreed in the Agreement. This gives Tjiwarl Native Title Holders the opportunity for earlier engagement with licence applicants and both formal and structured involvement in the licensing process beyond that typically provided for.
- A Water Working Group to oversee and implement commitments and processes made with respect to water in Tjiwarl Country.

With the drought conditions of recent years, the Tjiwarl People's concerns for water resources and the impacts of mining have been heightened. The Agreement and water-related actions above provide Tjiwarl with a strong and transparent foundation for protecting the water resources of the region that support cultural and environmental values. Although most of this will come from having a more meaningful say in water licence applications that are being assessed by DWER, other benefits, such as the accessibility of water information, will also come from the more open relationships that are being established with mining companies and the Department as a result of the Agreement.

This package of works represents a significant step forward in ensuring that Tjiwarl People can continue to sustainably manage natural resources on Tjiwarl Country and is a demonstrated benefit of communities moving forward with negotiated agreements with the WA Government. However, even without an agreement in place, the water licensing provisions included in the Tjiwarl Agreement, could be used as a guide for other Native Title groups in the Goldfields Region to reach similar outcomes.

Image: Lake Miranda, Tjiwarl Country Credit: Tjiwarl Aboriginal Corporation

"Water is life to Tjiwarl people and we have a responsibility to look after it."

Greg Ryan-Gadsden Chief Executive Officer, Tjiwarl Aboriginal Corporation

# **RESPONSE**

# Vision & Thematic Outcomes

The Goldfields-Esperance region, across its industries and communities, has a long history of harnessing innovation to adapt to changing climates and scenarios and driving place-based change.

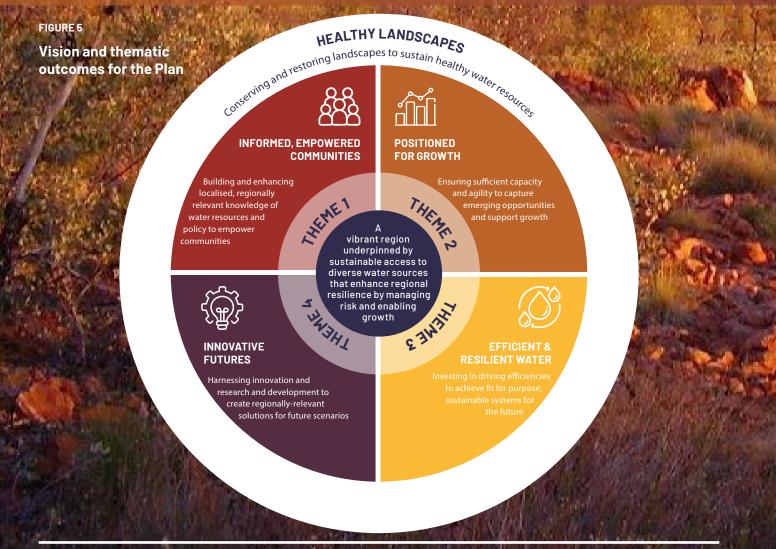
Almost universally, consultations revealed communities did not want to be passive recipients of water-focused responses. Instead, communities wanted to be empowered to seek the solutions required to build long term sustainability for their landscapes, communities and economic fabric.

A strong focus on building knowledge and understanding, partnerships and collaboration emerged during the conversations held throughout the RDRP process. As stakeholders began to connect with each other through the lens of the RDRP, early steps towards building strategic relationships and developing collaborative projects emerged. Mitigating against the vulnerabilities presented by isolation and remoteness were key considerations

(GEDC 2024a). Collaboration was identified by all stakeholders as a mechanism to achieve the Plan's objectives and features across many of the identified actions.

Stakeholders clearly wanted to ensure the RDRP's actions would build resilience and focus on preparedness rather than reactive response. Solutions were required to be future-focused, enable economic growth and place communities in a position to harness emerging opportunities in a dynamic manner.

Four key themes have been identified that will support the delivery of aspirations identified by stakeholders and the vision for the Plan (Figure 5). These themes are underpinned by healthy landscapes and the conservation and restoration of natural assets to sustain healthy water resources. The themes are represented as outcomes that together will support the objectives of the Plan and the priorities and aspirations of the region.



## Priority actions for delivery

Underpinning the vision and thematic outcomes are actions. The actions have been informed and shaped by the Drought Vulnerability Assessment and consultation program.

Actions have been identified and characterised to support an understanding of responsibility, scale and how they will support future progress and delivery against the thematic outcomes. Actions are grouped into areas of focus (Figure 6), and identified against the local, sub-regional or regional level as well as relevant thematic outcomes.





**ALTERNATIVE WATER SOLUTIONS:** Assess desalination and other options for alternative water access and storage, including disused assets.



**INDUSTRY RELATIONSHIPS:** Secure public water-related benefits from industry activities where practical



**LANDSCAPES:** Improved landscape management practices to manage risk and support growth



**POLICY & KNOWLEDGE BUILDING:** Develop policies and levers that reflect the regional context, and build capacity and knowledge for effective advocacy



**PRIMARY INDUSTRIES:** Provide support for Primary Industries to continue to adapt and grow



**STORAGE EFFICIENCY:** Assess feasibility and suitability of dam refurbishment and tank storage facilities



**WASTEWATER:** Secure alternative water supply by maximising opportunities for wastewater usage

## CASE STUDY - SOUTH EAST PREMIUM WHEATGROWERS ASSOCIATION

# INNOVATIVE BROADACRE COMMUNITIES

A collaborative demonstration trial is helping growers find cost effective options to adapt on farm and community water assets to a changing climate, increasing rural water security and drought resilience.

For small agricultural communities dependent on annual rainfall capture, secure water resources are essential to the viability of their broadacre production systems.

However, shifting rainfall patterns in areas such as the northern mallee in Esperance have seen a reduction in winter rainfall, and importantly a reduction in runoff generating rainfall events. In the last ten years Salmon Gums and Grass Patch have been declared water deficient multiple times.

Identifying a need for innovative solutions to maximise rainfall capture and storage, the industry is working together to improve the efficiency of their existing dams and catchments.

Together with local farmers, the South East Premium Wheatgrowers Association (SEPWA) has delivered an innovative demonstration trial focused on increasing on-farm capture potential by lining traditional roaded catchments with used tarps sourced from CBH grain bins.

The trial results show the tarps can effectively produce runoff after a 1.5mm rainfall event, where traditional well maintained roaded catchments require around 10mm before generating any runoff.

"This significant increase in rainfall capture is vital to the ongoing viability of farming enterprises given the importance of access to water, particularly during summer, for stock and bushfire control. It is also key to summer weed control which is proving essential to continuous cropping farming and producing more grain from less growing season rainfall," Michelle Handley, Chief Executive Officer of SEPWA said.

In areas like Salmon Gums, generating run off on sub 5mm events is critical. Rainfall data from the Salmon Gums tarp trial site showed the area only received three rainfall events greater than 10mm over the 12 month period following installation of the tarps.

Without the tarps, the Salmon Gums site would only have generated runoff three times in an entire year.

The learnings from the project, including how to install the tarps, how effective they are at harvesting water from rainfall events and how long they will last, will support the sector to make more informed decisions based on locally relevant outcomes.

"There are hundreds of dams in the region that were built for different rainfall conditions and cost effective improvements in their performance have the potential to yield big gains," Ms Handley said.

Other communities across the Goldfields-Esperance region may be able to adapt the learnings of this trial to other local contexts to maximise water capture in a drying climate.

The project is led by SEPWA in collaboration with the Department of Primary Industries and Regional Development (DPIRD) and the Department of Water and Environmental Regulation (DWER) with funding from the Community Water Supply Program. Delivered in consultation with ASHEEP & BEEF, the Shire of Esperance, CBH, the University of Western Australia (UWA) and growers.

"This significant increase in rainfall capture is vital to the ongoing viability of farming enterprises"

Michelle Handley
Chief Executive Officer, South East Premium Wheatgrowers Association

Image: Lined catchment at the Salmon Gums trial site

Credit: SEPWA

## **Action Structure**

Actions are planned to take place in a targeted manner to ensure they build on and adapt in response to emerging information and data. This is particularly important for the response in this Plan due to the need to enhance understanding of supply and demand dynamics before implementing solutions. To achieve this objective, a review of all actions was undertaken to identify the immediate priorities for delivery. There are two types of priority actions: foundational actions (Table 2) and 'quick wins' (Table 3). The delivery of the priority actions will support future action pathways (Table 4) to be developed (Figure 7).

#### FIGURE 7

Priority actions will support the delivery of future action pathways



#### **FOUNDATIONAL ACTIONS**

Delivered in the next 12 months

Focused on gaining an improved understanding of the system

Enable subsequent actions to be taken in an informed and targeted way



#### **OUICK WINS**

Targeted actions addressing specific challenges or opportunities within the control of Stakeholders

Delivery of these actions will further support a shared understanding to enable future pathways



#### **FUTURE PATHWAYS**

Actions to support the delivery of future pathways and long-term resilience

Should be reviewed and reprioritised after 12 months

Will be updated to include any new priority actions that emerge in the first 12 months of RDRP implementation

Image: Catchments in the Fitzgerald Biosphere, Hopetoun

## **Foundational Actions**

TABLE 2: Foundational actions that will establish pathways for the future

ACT	ACTION		THEMES	NEXT STEP
	POLICY & KNOWLEDGE BUILDING			
F1.1	Advocate for increased input and collaboration into Water Corporation water supply planning processes	Regional		Identify and build out engagement pathway with GEWSG.
	water supply planning processes			Initial target is to hold an information session with Water Corporation, and DWER
				Identify high priority water supply planning processes for input and engagement
F1.2	Enhance knowledge sharing opportunities on water resource	Regional		Identify and build out engagement pathway with GEWSG
	regulatory arrangements between DWER and regional industry			Initial target is to hold an information session with DWER
F1.3	Undertake a review of water demands, including the regional non-potable	Regional	888	Develop a scope of work to prioritise the areas of focus for the review with input from GVROC.
	water demands			All LGAs must be able to provide clear water demand figures for what they have the ability to control (e.g. POS, fire water, future development)
F1.4	Conduct a Northern Goldfields Paleochannel status report - advocate for funding to complete	Northern		Identify and build out engagement pathway with GEWSG
F1.5	Formalise opportunities to work collaboratively with Water Corporation to administer the rollout of the Aboriginal Communities Water Services Program, including the identification of fit-for-purpose infrastructure development that support remote communities to remain on Country	Northern Central	## No. 10 Per 10	Identify and build out engagement pathway with GEWSG and relevant remote communities
F1.6	Review progress on the implementation of Tjiwarl Palyakuwa (Agreement) and lessons that can be shared with other Prescribed Bodies Corporates	Regional	883	GEDC to identify and build out engagement pathway with Tjiwarl Aboriginal Corporation
F1.7	Leverage Waterwise and other relevant programs to enhance community knowledge and understanding of efficient water use and changing hydroclimatic conditions across the region.	Regional		Identify and build out engagement pathway with GEWSG.
	WASTEWATER			
F2.1	Undertake a desktop review of policy and frameworks to enhance LGA knowledge when investigating wastewater opportunities	Regional		Develop a scope of work to prioritise the areas of focus for the review with input from GVROC  Consideration of Shire of Dundas as a partner in review/case study
<u></u>	STORAGE EFFICIENCY			
F3.1	Coordinate review of dam refurbishment potential across the sub-regions and build on findings from WaterSmart Dams program	Regional	á	Develop a scope of work to prioritise the areas of focus for the review with input from GVROC and other relevant users/ stakeholders (e.g. agricultural industry groups)

ACTION REGION THEMES NEXT STEP

AC I		KEUIUN	INEMES	NEXISIEP
	INDUSTRY RELATIONSHIPS			
F4.1	Enhance knowledge on the pathways for LGAs to leverage outcomes from mining proponents (planning mechanisms, water and environmental approvals, social license)	Regional		Identify and build out engagement pathway with GEWSG
F4.2	Enhance knowledge on pathways to engage and optimise benefits from water asset development associated with the Outback Way	Northern Central		Identify and build out engagement pathway with MainRoads
××	LANDSCAPES			
F5.1	Map emergency response capacity of the region including capabilities, and strategic assets/location to support a community-led, sub-regional strategic fire management plan	Regional	## AM F	Develop a scope of work to prioritise the areas of focus with input from GVROC and southern and central sub-regional stakeholders (e.g. agricultural, Prescribed Body Corporate)
F5.2	Investigate best-practice flood mitigation measures that are locally relevant for local government, with a lens on major transport routes and infrastructure, and pathways/processes to implement	Regional	îń	GVROC to work with DWER to update floodplain mapping in consideration of climate change, including mitigation options.  GEWSG to identify and build out engagement pathway to collaborate with MainRoads and Rangelands NRM to share knowledge of assets, roads and landscapes, including link to Outback Way
F5.3	Support traditional owner-led land management practices for fire mitigation including cultural burning and restoration of natural ecosystems	Regional		Identify and build engagement pathway with GEWSG and relevant Traditional Owner groups
	PRIMARY INDUSTRIES			
F6.1	Align to and promote programs delivering knowledge and capacity building for best practice forage and feed budgeting, soil testing, stocking rates and nutritional needs assessments	Regional		Work to encapsulate Southern Rangelands Revitalisation Program and the SW WA Drought Hub Southern Rangelands Situational Analysis into program of works
F6.2	Align to and build on the outcomes from WaterSmart Farms including understanding of feasibility of different activities for the Goldfields-Esperance region and consider opportunities to apply learnings across Goldfields communities	Regional		Work with DPIRD to identify implementation pathways
F6.3	Align to and promote programs delivering best practice water use efficiency knoweldge and capacity building for broadacre production settings	Southern	€\$ Ø	Work with DPIRD to identify appropriate programs providing best practice approaches

## **Quick Wins**

TABLE 3: Quick win actions identified by Stakeholders

ACTION	REGION	THEMES	NEXT STEP
POLICY & KNOWLEDGE BUILD	ING		
Q1.1 Improve uptake and grow Waterwise programs to enhance community awareness and water use efficiency	Regional		GVROC to support LGAs and work with Water Corporation to develop regionally specific and appropriate programs with Water Corporation, and DWER at a LGA or sub-regional level
<b>□</b> WASTEWATER			
Q2.1 Wastewater Treatment Plant upgrades and associated expansion of the re-use scheme	Southern	888	Shire of Esperance to work with DWER and Water Corporation to progress the re-use scheme
Q2.2 Water Bank project under the National Water Grid	Central	áá S	City of Kalgoorlie-Boulder to continue existing delivery pathway
STORAGE EFFICIENCY			
Q3.1 Develop strategic investment pre-feasibility assessment to provide clear, structured and shared understanding of cost/benefits and feasibility of Cordingup dam refurbishment	Southern	& A A A A A A A A A A A A A A A A A A A	Shire of Ravensthorpe with Water Corporation consultation to commence development of scope of work
Q3.2 Strategic water supply points and improvement projects to support community water supply, firefighting and emergency stock	Southern		Shire of Esperance
Q3.3 Dam refurbishment to reduce need for water carting	Northern Central		GVROC to continue co-development of Community Water Supplies Partnerships funding applications with Shire of Menzies, Wiluna and Dundas
Q3.4 Investigate levers to support adoption of residential and commercial tanks and gutters to enhance community and LGA supply	Regional	## 	GVROC to work with DWER to explore opportunities to develop regional roll out of tanks and gutters on LGA buildings

#### ACTION REGION THEMES NEXT STEP

ALTERNATIVE WATER SOLUTI	ONS		
Q4.1 Research into innovative technology to use waste products from desalinisation as inputs into community or broadacre settings	Regional	₹ <b>`</b>	Research to reuse brine in mining industry currently being delivered by Curtin University – extend learnings beyond mining industry
Q4.2 Confirm partnership arrangements with Curtin University School of Mines to investigate opportunities for nano-technology in regional context	Central	<del>(</del>	City of Kalgoorlie-Boulder to continue engagement with Curtin University to finalise partnership and research delivery arrangements and timing
* LANDSCAPES			
Q5.1 Develop water management plan for Kartjdijanup including identification of assets and infrastructure required to ensure secure water supply for Land Management and conservation programs	Southern	ñí	Esperance Tjaltjraak Native Title Aboriginal Corporation (ETNTAC) to identify and implement preferred development pathway



Image: Wastewater Treatment Facility, Esperance

## Future pathways for action

The priority actions identified will support the development of future action pathways (Table 4). It is intended that these additional actions will be reviewed and prioritised after the initial 12 months of RDRP implementation, including any new priority actions that emerge. This is a fundamental aspect of the Monitoring, Evaluation and Learning Framework.

Stakeholders identified that the actions identified here will remain priorities as they support the long-term resilience of communities and the region. However, the prioritisation of future actions has the potential to change in response to emerging trigger points, including major new mine or industrial development proposals that lead to efforts to target how stakeholders can work with proponents to optimise community outcomes.

TABLE 4: Actions to inform future action pathways

ACTION	REGION	THEMES
POLICY & KNOWLEDGE BUILDING		
P1.1 Assessment of pathways for funding allocated to ce support programs to be diverted into preparedness at a local level		ái Ø
P1.2 Ensure LGA involvement and collaboration in GAW: upgrade planning	SS Central	
P1.3 Ensure technical work (demand, storage, evaporation reliability) is done in preparation for grants	on, Regional	
P1.4 Work with Water Corporation on policy levers to ensure industrial water supply aligns with economi growth opportunities	Regional c Kalgoorlie-Boulder	á
P1.5 Work with DWER to optimise water carting efficience rural communities	cies to Southern	
P1.6 Investigate Traditional Owners interest in sharing c knowledge for water and drought resilience and m pathways for bilateral knowledge sharing		
wastewater wastewater		
P2.1 Enhance regulatory environment and facilitation of wastewater opportunities	f treated All regions	
P2.2 Advocate for streamlining of approvals and red tap reduction to unlock wastewater use opportunities	e All regions	
P2.3 Conduct feasibility assessment of wastewater pote opportunities for Northern Goldfields communities		
STORAGE EFFICIENCY		
P3.1 Assess efficacy of WaterSmart Dams findings in Northern and Central sub-regional environments	Northern, Central	
P3.2 Cost-benefit analysis for evaporation control to info cost-effective practical control solutions for local governments and broadacre agriculture	orm All regions	
P3.3 Dam refurbishment for fire management	Shire of Dundas	

ACTION REGION THEMES

, , , ,	ALTERNATIVE WATER SOLUTIONS		
P4.1	Evaluate feasibility and cost/benefit analysis of new and existing technologies under different regional conditions and usage patterns	Regional	<del>(</del>
P4.2	Identify degraded or abandoned assets that could be reinstated for alternative use (ie community storage) and map steps required to reinstate and divest	Regional	
P4.3	Work with government and other stakeholders to support the development of alternative, fit for purpose water supply for industrial use and other potential industries	Southern, Central	
P4.4	Investigate stormwater capture and storage opportunities for town water supply	Regional	
	INDUSTRY RELATIONSHIPS		
P5.1	Establish partnerships with industry to explore water synergies for public benefit	Northern, Central	88 áií
P5.2	Information sharing on post mine closure procedures and rehabilitation opportunities for community and local Aboriginal organisations or businesses	Northern, Central	
P5.3	Establish framework that facilitates increased transparency and accessibility of information between community, government and mining	Northern, Central	888
P5.4	Look at water-related mine closure opportunities and partner with research at the CRC for Transformation in Mining Economies	Northern, Central	
	LANDSCAPES		
P6.1	Develop community-led, sub-regional strategic fire management plans that are aligned to DFES regional plans and can be used to prioritise emergency response infrastructure investment	Regional	
P6.2	Advocate for best practice road design that supports recharge and mitigates erosion and flooding	Regional	
P6.3	Increase monitoring capacity across the region for climate, water or other factors (i.e. soil moisture)	Regional	888
P6.4	Landscape remediation and rehydration to mitigate flood and erosion risk, promote sustained vegetation cover and support recharge	Regional	
	PRIMARY INDUSTRIES		
P7.1	Research and development to improve reliability of forecasts and models for broadacre and other industries	Regional	
P7.2	Continued research and demonstration to shift broadacre industry to more drought tolerant systems	Southern	₹ <b>\</b>

# MONITORING, EVALUATION & LEARNING FRAMEWORK

The Monitoring, Evaluation and Learning (MEL) framework outlines an agreed approach for monitoring progress and performance against the actions and outcomes identified within the Plan. It establishes mechanisms for identifying and sharing learnings for future improvements and facilitates transparency, adaptive management and effective program delivery.

The MEL framework aligns with Plan implementation and includes consideration of the delivery of the foundational and 'quick win' actions outlined in the previous section and their influence on setting future pathways for action. The MEL framework sets the requirements for monitoring the delivery of the foundational and 'quick win' actions and provides a check-in point every 12-months to review, refine and inform ongoing implementation of the future action pathways in line with thematic outcomes. This approach ensures flexibility and continuous improvement of Plan implementation into the future.

## **Approach**

The MEL framework sets out a practical and fit-for-purpose approach with four key components based on best-practice MEL:

#### **PROGRAM LOGIC**

A common approach to strategic planning which provides a consistent basis upon which to monitor and evaluate and to drive learning and continuous improvement.

#### **MONITORING**

The regular, systematic collection of data or information to track delivery and give an indication of progress towards achieving intended outcomes.

#### **EVALUATION**

The periodic collection and analysis of data or information to assess the value of a program and the extent to which it is achieving, or has achieved, intended results.

#### **LEARNING**

Structured mechanisms for embedding lessons from implementation to support continuous improvement and adaptively manage towards intended outcomes.

These four components are shown conceptually in Figure 8.



# FIGURE 8 Conceptual MEL framework VISION

#### **PROBLEM / OPPORTUNITY**

**DELIVERY** 

THEMATIC OUTCOMES

- Articulates why the initiative is important (problem/objective), what change it is seeking to achieve over time (outcome themes), and how this will be achieved (delivery) to reach desired future state (aspirations)
- Provides the basis for measuring progress and evaluating success over time

#### **INDICATORS**

- Regular or ongoing data collection
- · Indicators provide a signal that actions are collectively supporting progress toward the achievement of outcomes
- · Monitoring allows early identification of trends and risks and supports adaptive management

#### **KEY EVALUATION QUESTIONS**

- Periodic collection and analysis of data
- Uses a consistent set of key evaluation questions to evaluate delivery and the achievement of outcomes, as well as to identify areas for improvement

#### **LEARNING & CONTINUOUS IMPROVEMENT**

- Sharing findings to support decision-making, accountability and continuous improvement
- Tailored information to meet audience needs and support stakeholders to fulfil their roles and responsibilities

Image: Senna notabilis Northern Native Seed Industry Development Initiative Credit: Pilbara Development Commission

## **Program logic**

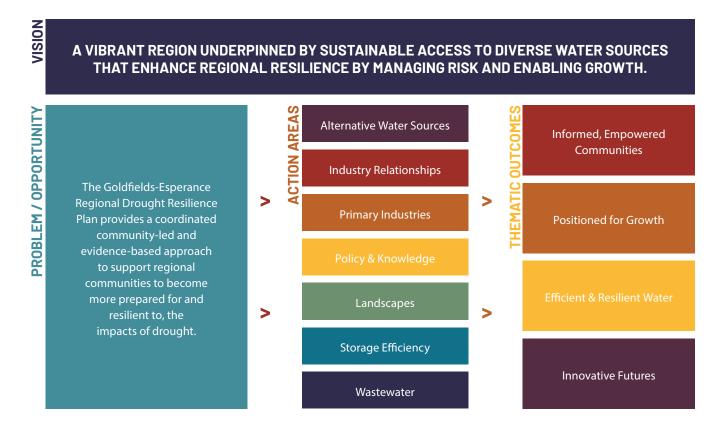
A program logic approach has been used to capture the desired outcomes for the Plan and support outcomes-based monitoring and evaluation. The program logic articulates the desired change that the Plan is expected to deliver over time.

Although demonstrable progress towards outcomes is expected within the first 12 months of Plan implementation, the program logic recognises that this period will also help build the foundations of future work to support long-term outcome achievement. This reflects the importance of the Plan's foundational actions and how they will lead to future actions.

The program logic is provided below (Figure 9).

#### FIGURE 9

#### **Program logic**



## Monitoring indicators

The MEL framework uses indicators to track progress towards the four thematic outcomes the Plan actions collectively aim to deliver. The monitoring approach acknowledges that these actions will build change over time, with the first 12 months focused on foundational and quick win actions to build the knowledge and relationships needed to deliver future actions to improve the conditions underpinning regional water security.

The monitoring approach therefore sets indicators for foundational actions which are expected to occur within the first 12 months, providing an indication that actions are collectively on track. It also outlines anticipated future indicators for the 12-36 month implementation period which will be reviewed at the 12-month mark (as outlined in following sections).

Indicators for tracking progress towards thematic indicators are provided below (Table 5).

#### Indicators for tracking progress towards thematic outcomes

A VIBRANT REGION UNDERPINNED BY SUSTAINABLE ACCESS TO DIVERSE WATER SOURCES THAT ENHANCE REGIONAL RESILIENCE BY MANAGING RISK AND ENABLING GROWTH.

FOUNDATIONAL INDICATOR (WITHIN 12 MONTHS)	ANTICIPATED FUTURE INDICATOR (12-36 MONTHS)	ASSESSMENT APPROACH			
informed, empowered communities					
Increased engagement activities and participation from community and industries as part of water supply and water resource planning processes	Clear and consistent method to ongoing engagement and participation	Documentation and reporting from GEWSG, Water Corporation and DWER, DPIRD, Main Roads			
Plans and scopes of work for priority research and information sharing pathways complete	Priority research complete and communicated	Documentation and reporting from GRVOC, Water Corporation and DWER			
Increased expression of interest from LGAs, Traditional Owners, community and industry with water security related initiatives and opportunities	Increased level of interest, engagement and investment in programs and initiatives from LGAs, Traditional Owners, community and industry	Data on applications, attendance and number of initiatives activated			
POSITIONED FOR GROWTH					
External investment, projects and engagement pathways are identified and initiated	Increased external investment into drought resilience and water security building initiatives	Data on scale of external investment into drought resilience and water security building initiatives			
Priority water management and asset planning complete					
© EFFICIENT AND RESILIENT W	ATER				
Targeted investment projects by stakeholders in 'quick wins' are funded and outcomes communicated	Increased level of interest, engagement and investment in applications for funding from stakeholders	Documentation and reporting from stakeholders			
Scope of work to undertake research to support and prioritise future funding applications complete	Feasibility assessment of priority projects commenced	Documentation and reporting from stakeholders			
INNOVATIVE FUTURES					
Engagement with key industry and academic partners to finalise partnership and research delivery arrangements and timing	Partnership arrangements developed and implemented	Documentation and reporting from GRVOC, industry and academic partners			
Priority knowledge sharing opportunities identified and communication planning complete	Communication of lessons from projects, engagement and other activities complete	Documentation and reporting from GRVOC, industry and academic partners			

## Key evaluation questions

Periodic evaluation will be guided by key evaluation questions (KEQs) to guide information gathering and analysis and to identify insights into achievements and lessons. The KEQs explore the main elements of the program logic and will be used as part of the evaluation process every 12 months.

TABLE 6
Key evaluation questions

#### KEY EVALUATION OUESTIONS **DATA SOURCES** Is the rationale and intent of the Plan still relevant? Consider: · Qualitative insights from Stakeholder representatives · Have there been any changes in the operating environment since the start of · Empirical evidence resulting the Plan, such as major changes in water demand, technology, management from the delivery of practices, planning or policy settings? foundational actions · What implications does this have on the intent of the overall Plan or specific actions? Have actions been implemented as intended? Consider: · Review of milestone achievement and action • What actions and outputs have been progressed or completed? implementation reporting · Was progress influenced by external factors? If so, how? · Oualitative insights from • Was the program implemented within the expected timeframes? Stakeholder representatives Are there any barriers to future actions? If so, how can these barriers be · Qualitative insights from addressed? Consider: Stakeholder representatives • Was implementation constrained in any way by resources, information availability, partner or stakeholder participation? · Was implementation influenced by any unanticipated external factors, such as policy changes, economic factors or environmental conditions? · Is there anything that could be done differently or better? What have been the Plan's achievements against intended outcomes to date? · Monitoring data Consider: • Qualitative insights from Stakeholder representatives • What are the results and trends against outcome indicators? To what extent did activities support the achievement of outcomes? Consider: · Qualitative insights from Stakeholder representatives · Were activities targeted effectively towards achieving outcomes? · Monitoring data • Have any additional actions necessary to support outcomes been identified in the course of implementation? What unintended outcomes (positive or negative) have arisen, if any? Consider: · Qualitative insights from Stakeholder representatives · Have partners or stakeholders experienced any unintended consequences? · Monitoring data · Were any adjustments to program implementation required to ensure achievement of outputs or outcomes? Why were adjustments required? 7 What improvements could be made to Plan implementation in the future, if any? · Qualitative insights from Stakeholder representatives

· What changes to scientific, industry, technical and management knowledge

and understanding should be considered in future Plan implementation?

· Are resources, governance and management appropriate to support future

implementation?

· Review of milestone

achievement and action

implementation reporting

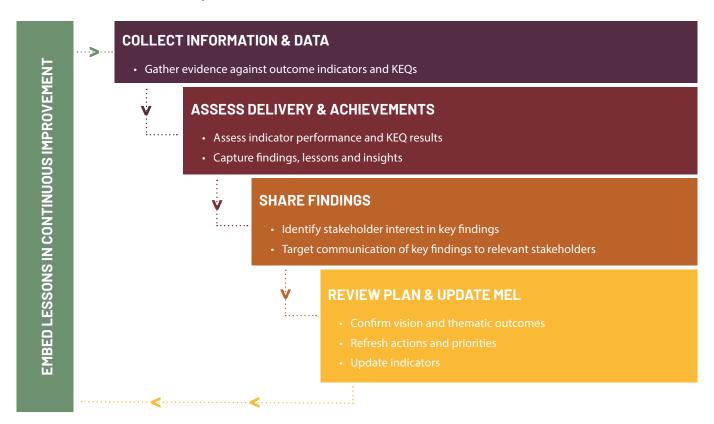
## **MEL process**

The MEL framework sets out a 12-month cycle aligned with Plan implementation and foundational and future actions. This timing provides a check-in point to review progress to date and adjust delivery as needed to ensure implementation remains focused on key priorities and outcome achievement.

The key steps within the 12-month cycle are outlined below (Figure 10).

#### FIGURE 10

#### Overview of 12-month MEL cycle



## MEL Roles & Responsibilities

Clear, fit-for-purpose governance arrangements are critical to using MEL to support successful Plan implementation and outcomes. The Plan has overarching governance arrangements which will be used to implement the MEL framework, ensuring roles and responsibilities are clear and sit with the most appropriate stakeholders and decision-makers.

Roles and responsibilities to implement the MEL framework should follow principles for good governance, including:

#### **CLARITY OF PURPOSE**

Ensuring that all stakeholders understand their roles and the contribution they are making to the MEL framework and to the Plan and have clear accountabilities. This ensures key steps, such as information collection and updating actions to reflect lessons, are executed efficiently and effectively.

#### **OPERATIONAL AUTONOMY**

Empowering and trusting stakeholders to exercise their responsibilities and to make the decisions required to deliver the outcomes that they are accountable for. This supports efficient MEL and empowers effective decision-making to implement lessons.

#### **EFFECTIVE PERFORMANCE MONITORING:**

Consistent, fit-for-purpose and transparent monitoring of performance of assigned roles and responsibilities. This supports accountability and helps identify what changes may be required to achieve success.

## Risks & Assumptions

Foundational and quick win actions were identified by stakeholders as the priority actions to be implemented in the next stages of the Plan's delivery. However, stakeholders clearly identified the risks posed by major trigger events that may alter the state of water demand or supply opportunities in the region and therefore, require a review of the priority actions. Such events may include either a substantive new mine is identified for immediate investment or, a major new industrial water use (e.g. industrial precinct) or supply opportunity (e.g. recycled water from an industrial precinct). These events can cause substantive short-term risks to the delivery of the intended outcomes of the Plan if not managed. Ongoing monitoring and reporting on these risks are part of the ongoing monitoring arrangements for the implementation of the Plan.

More broadly, Plan actions are based on assumptions about the context and settings for water management in the Goldfields-Esperance region. This includes assumptions about economic and industry performance, community profiles, related policy and investments, ecological conditions, and stakeholder engagement and participation. A key example includes Sector Adaptation Planning by the government that is occurring in Western Australia. This is expected to include specific actions and pathways that will intersect with those outlined in the Plan. Any material changes to these underlying assumptions may impact Plan implementation and outcomes. Risks and assumptions, and any changes needed to account for them, are considered through the KEQs and MEL process.



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# **APPENDICES**

# Appendix A: Drought Resilience Planning Alignment in the Goldfields-Esperance Region

#### TABLE A1

#### State and national resilience planning initiatives

PROGRAM	DESCRIPTION	ALIGNMENT
DAFF Future Drought Fund	The Future Drought Fund (FDF) aims to boost drought and climate resilience.	The GE-RDRP and associated actions support the FDF's objectives, including:  • Partnering for local solutions  • Building knowledge, skills and capability  • Innovating for transformation  • First Nations initiatives  • Measuring progress and sharing knowledge
Other RDRPs	The state approach to delivering RDRPs has developed a framework for collaboration and knowledge sharing between regions during plan development and implementation.	Alignment between regional plans to be identified.
DPIRD Southern Rangelands Revitalisation Program	Capacity building to support pastoralists to develop revitalisation plans that support improved rangelands condition and livestock profitability.	Landscape management & flood mitigation priorities identified in the GE-RDRP.
DPIRD WaterSmart programs (Farms, Dams and Industries)	Trials to improve knowledge of best practice dam and catchment design and test novel solutions including lined dams and desalinisation units for broadacre systems.	R&D priorities identified by the broadacre sector, opportunities to apply learnings to other contexts.
South West WA Drought Hub Situational Analyses	Maps drought related agricultural initiatives occurring within the regions and gaps or opportunities for future work to address drought risks on farm.	Support individual or industry led actions at the local scale.
Kep Katitjin – Gabi Kaadadjan Waterwise action plan 3 (2024–27)	State Government's cross-government approach to a coordinated, long-term approach to managing the Perth and Peel regions' water and creating climateresilient waterwise communities.	Knowledge-sharing opportunities with regional communities and opportunities to expand learnings in the Goldfields-Esperance region.
Waterwise Councils Program	Supports local governments to improve water efficiency and adopt waterwise practices in their operations and communities.	Provides pathway for GE local governments to implement actions under Theme 3.
Strategic Community Water Supplies Partnerships program (DWER)	Encourage the planning and establishment of reliable non-potable water supplies to meet emergency farmland and firefighting water needs and reduce scheme water use.	Pathway for local governments and communities to develop projects to increase water security and emergency response capacity.

PROGRAM	DESCRIPTION	ALIGNMENT
Aboriginal Community Water Services Program (Water Corporation)	Program to manage the provision of water services to Remote Aboriginal communities and progress infrastructure upgrades to deliver safer and more reliable water services.	Working to improve water security of remote Aboriginal communities in the region.
WA Climate Adaptation Strategy	The state approach to climate adaptation which establishes the need for Sector Adaptation Plans (SAPs) to be developed for key sectors in Western Australia, including water and primary production.	Will provide key support and direction for action in the region, including crosscutting actions.
Climate Science Initiative WA	The state will work with partners to deliver several key actions, such as detailed climate projections and establishing a climate adaptation research hub.	Provide knowledge and key data at a local level to support the delivery of actions in the region.
Diversify WA	State's economic development framework and outlines the Western Australian Government's vision for a strong and diversified economy.	Supports actions that relate to economic diversification in key sectors, including tourism, mining and agriculture.
State Infrastructure Strategy	Outlines the State's significant infrastructure needs and priorities including in response to climate change.	Supports actions that address/relate to infrastructure to increase water security, healthy landscapes and regional resilience.
State Aboriginal Empowerment Strategy 2021 - 2029.	The Strategy directs the State Government efforts towards a future in which all Aboriginal people, families and communities are empowered to live good lives and choose their own futures from a secure foundation.	The Plan supports Aboriginal communities' right to safe and secure water supplies and aims to enhance First nations' voices in decisionmaking and opportunities for economic development.

TABLE A2

Regionally-led resilience planning initiatives and related work

PROGRAM	DESCRIPTION	ALIGNMENT
GVROC Regional Climate Alliance Adapting Community Assets for Climate Change	Framework to support local governments to identify most beneficial climate change adaptation pathways for local infrastructure assets.	Addressing vulnerabilities outside of water security and drought and supports resilience building initiatives at the local level beyond the scope of water security and drought for the region's climate adaption efforts.
GVROC Regional Climate Alliance Goldfields Esperance Urban Forrest and Biodiversity Program	Tree and shrub planting program in town centres between 2025 – 2027 using native and drought tolerant species, to reduce impacts of extreme heat days and improve livability and amenity.	Addressing related drought impacts, extreme heat days and healthy landscapes, aligned with the Plan.
GEDC Strategic Plan 2022-2024	Outlines the approach to the delivery of regional development outcomes, as well as key initiatives and strategies to drive economic and social development for the Goldfields-Esperance region	The GE-RDRP aligns with and supports the initiatives identified within the Strategic Plan.
Curtin University Goldfields Fit-For- Purpose Industrial Water Supply Research	Investigating water treatment options for Fit-For- Purpose Industrial Water Supply in the Goldfields, including use of Nano-filtration technology	Identifying alternative water supplies and fit-for-purpose water for industry, themes 2,3 & 4.

#### Appendix B: Consultation and Engagement for the GE-RDRP

#### **CONSULTATION & ENGAGEMENT**

Stakeholder engagement was a key element in the development of the GE-RDRP. Between March 2024 – April 2025, approximately 170 individuals across 60 organisations were engaged in consultations or briefings, including one on one or small group discussions and meetings, targeted small group workshops, online surveys and phone conversations, delivered both in person and online.

Engagements aimed to share the intent and development of the Plan and provide the opportunity for stakeholders' perspectives and priorities to be captured and inform the development and direction of the Plan.

Discussions sought to understand the lived experience of drought and water insecurity for stakeholders including their perceived climate impacts and vulnerabilities, their priorities for action and potential opportunities for future development. Some of the questions explored during these discussions include:

- What are the impacts of drought or water insecurity on your region? What communities, landscapes or industries are the most vulnerable to these impacts?
- What actions could be taken to address these vulnerabilities and build resilience? Are there any barriers that would need to be overcome?
- What are the top priorities for your region to become more resilient and build water security?
- What economic or social opportunities could be realised if the region was not vulnerable to drought and water security?

#### TABLE B1

## Consultation agenda shared with Stakeholders to facilitate discussion around the key questions listed above

Session 1	Climate Experiences: Exploring climate impacts throughout history as well as what threats are impacting you now. It will also explore future trends and your major concerns.
Session 2	Capacity: Understanding capacity to adapt, absorb or mitigate current and future climate impacts, with a key focus on assessing water assets and fit-for-purpose infrastructure.
Session 3	Vulnerabilities: Identifying the most vulnerable places, communities or industries in your region.
Session 4	Solutions: Opportunities and barriers that currently exist to address vulnerabilities and build resilience.

# TABLE B2 Organisations engaged throughout the development of the GE-RDRP

STAKEHOLDER GROUP	ORGANISATIONS
Local Government	<ul> <li>The Goldfields Voluntary Regional Organisation of Councils (GVROC) and the GVROC Regional Climate Alliance</li> <li>The City of Kalgoorlie-Boulder and the Shires of Ravensthorpe, Esperance, Coolgardie, Dundas, Menzies, Laverton, Leonora, Wiluna and Ngaanyatjarrraku</li> </ul>
Service Providers	<ul> <li>Main Roads</li> <li>Telstra</li> <li>Fortescue Future Industries</li> <li>Water Corporation</li> <li>Western Power</li> <li>Water haulage providers (Desert Sands Cartage, Hamptons Transport &amp; other)</li> </ul>

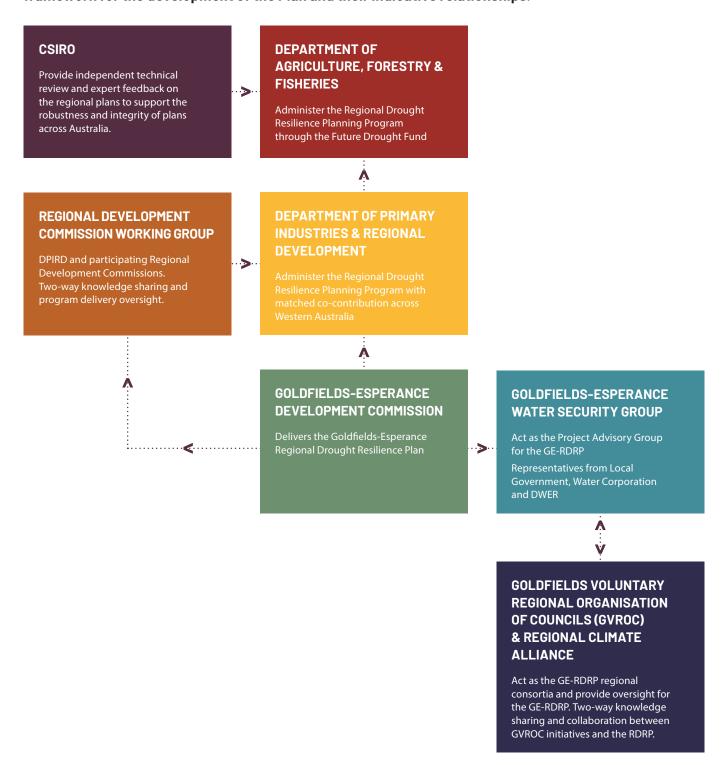
STAKEHOLDER GROUP	ORGANISATIONS
Primary Industries	<ul> <li>The South-West WA Drought Resilience Adoption and Innovation Hub</li> <li>Dept. Primary Industries and Regional Development programs: <ul> <li>Southern Rangelands Revitalisation Program</li> <li>Climate Resilience Taskforce Natural Capital Investment</li> <li>Water Smart Dams, Farms &amp; Industries</li> </ul> </li> <li>South East Premium Wheatgrowers Association</li> <li>ASHEEP &amp; BEEF</li> <li>Ravensthorpe Agricultural Initiative Network</li> <li>North Mallee Farm Improvement Group</li> <li>Esperance Zone Innovation Group</li> <li>Southern Rangelands Pastoral Alliance</li> <li>Goldfields Nullarbor Rangelands Biosecurity Association</li> <li>South Coast Natural Resource Management</li> <li>Rangelands Natural Resource Management</li> <li>Individual broadacre and pastoral businesses</li> </ul>
Prescribed Body Corporates, Native Title Body Holders and Aboriginal Corporations and Services	<ul> <li>Esperance Tjaltjraak Native Title Corporation</li> <li>Ngaanyatjarra Council Aboriginal Corporation</li> <li>Paakanu Aboriginal Corporation</li> <li>Native Title Services Goldfields</li> <li>Pila Nguru (WTAC) Aboriginal Corporation</li> <li>Kultju Aboriginal Corporation</li> <li>Ngadju Aboriginal Corporation</li> <li>Warnpurru Aboriginal Corporation</li> <li>Upurli Upurli Nguratja Aboriginal Corporation</li> <li>Tjiwarl Aboriginal Corporation</li> <li>Kakarra Aboriginal Corporation</li> </ul>
Community Organisations and Representatives	<ul> <li>Ravensthorpe &amp; Hopetoun Community Resource Centers</li> <li>Regional Arts WA</li> <li>Other interested individuals</li> </ul>
Mining	<ul> <li>The Chamber of Minerals and Energy</li> <li>Lynas</li> <li>BHP</li> <li>Genesis Minerals</li> <li>Brightstar Resources</li> <li>First Quantum Minerals</li> <li>Goldfields Australia</li> </ul>
Tertiary Institutes	<ul> <li>Curtin University, WA School of Mines</li> <li>UWA, School of Agriculture and Environment</li> </ul>
State Departments	<ul> <li>Department of Water and Environmental Regulation</li> <li>Department of Jobs, Tourism, Science and Innovation</li> <li>Department of Biodiversity, Conservation and Attractions</li> <li>Workforce Australia</li> <li>Department of Primary Industries and Regional Development</li> </ul>

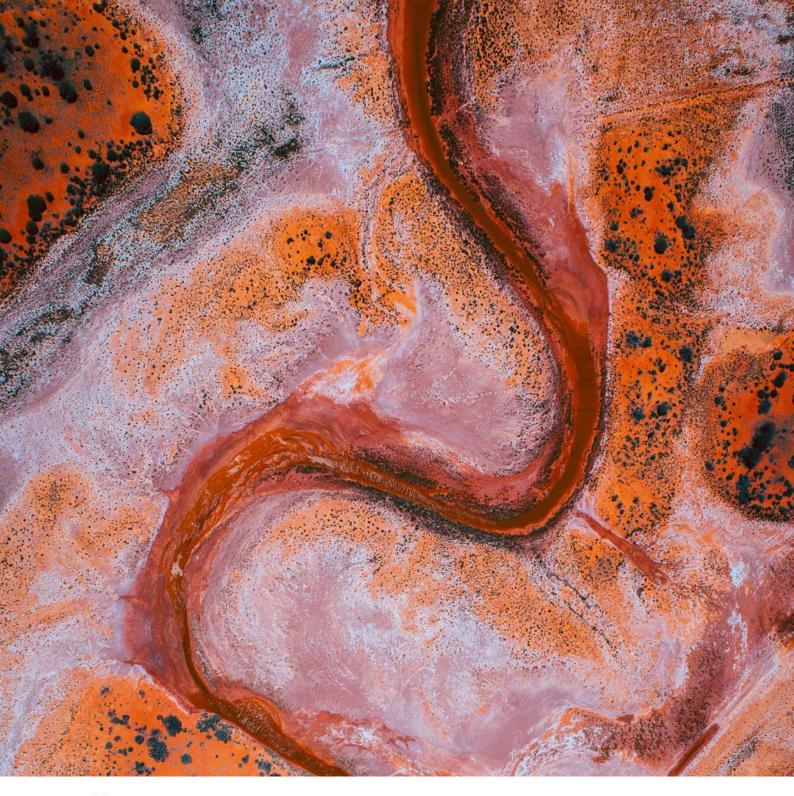
#### Governance

Figure B1 outlines the governance framework for the development phase of the GE-RDRP outlining the role of the GEDC, GVROC and the GEWSG as well as the State and Federal Department funding providers that provided strategic input, technical expertise and State-wide alignment to support the robustness and effectiveness of the final Plan.

#### FIGURE B1

Conceptual framework outlining the organisations that formed the governance framework for the development of the Plan and their indicative relationships.









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