



SOUTHERN NSW
Innovation Hub

SUSTAINABLE AGRICULTURE,
LANDSCAPES AND COMMUNITIES

IMPACT ROADMAP

Executive Summary

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The Southern NSW Drought Resilience Adoption and Innovation Hub (the Hub) builds preparedness and long-term resilience to drought across southern NSW through collaborative innovation, research translation and capacity building, supporting primary producers, First Nations and rural and regional communities. Consistent with the Future Drought Fund’s focus on resilience and preparedness, the Hub leaves frontline responses to drought to its partner organisations.

The Hub’s Impact Roadmap (the Roadmap) has been developed in collaboration with a diverse range of stakeholders across the region, including farmer-led organisations, government agencies, private advisors, the not-for-profit sector, universities, researchers, First Nations communities, farmers and regional community representatives.

This process has resulted in a clear set of impact-based priority areas that will guide the Hub and the region’s efforts to strengthen drought resilience for agricultural industries, First Nations communities, and rural and regional communities. These priorities help ensure that limited resources are directed to the areas of greatest need and greatest impact.

The Roadmap is structured around six **Impact Areas** that together reflect the social, environmental and financial dimensions of resilience:

- 1. Enhancing and Preserving the Natural Environment
- 2. Soil Resilience
- 3. Water and Water Use
- 4. Farming System Decisions
- 5. First Nations Community Resilience
- 6. Regional Social Resilience



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Each Impact Area includes defined strategic priorities, objectives and key program elements, providing a clear roadmap for future investment and activities. This structure enables southern NSW to remain focused on what matters most, avoiding dilution of effort and ensuring alignment with the highest-value opportunities.

This Roadmap prioritises initiatives that will deliver meaningful, relevant and measurable benefits for farmers, First Nations communities and/or rural and regional communities across southern NSW. By mapping and tracking all activities, projects and programs against the Impact Areas and sub-programs, we will monitor progress, identify gaps and learning needs, and ensure effort is directed where it will have the greatest impact.

The Hub itself does not have the funding available to deliver this Roadmap. Instead, the Roadmap directs resources, partnerships and collaborations to source investment and support from a diverse range of funding and investment arrangements. By clarifying what to prioritise, the Roadmap helps the Hub and others use limited resources strategically to attract co-investment and maximise return on effort. It leverages the Hub’s ability to form collaborations, with a focus on achieving impact. Further, the Roadmap will recognise activity that aligns and creates a pathway for the Hub to support work being done by others. The Hub’s role is to enable, coordinate and connect; delivery occurs through partners and existing networks.

Partnerships, strong collaboration and well-connected networks will be critical to delivering the Roadmap. We will work alongside industry expertise with scientific rigour, integrate First Nations knowledge where appropriate, and our door will remain open for discussing opportunities to deliver this Plan.

Together, these Impact Areas provide a targeted, evidence-informed roadmap to strengthen resilience and prosperity for southern NSW communities over the coming decades, ensuring the Hub remains focused on the most important and impactful actions in a context of finite resources.

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Impact Roadmap

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HUB VISION

Connected and adaptable people and places, prepared to respond to future challenges and capitalise on opportunities.

PURPOSE

Southern NSW Innovation Hub exists to provide farmers, rural communities, and First Nations peoples with the knowledge, resources and skills needed to build resilience and thrive in the face of climate variability and drought.

The Hub is dedicated to advancing sustainable agricultural practices, enhancing water management, supporting rural communities, and promoting environmental sustainability. By fostering research, innovation, collaboration, adaptability, and learning from and incorporating First Nations knowledge and practices, the Hub aims to create a resilient region that can navigate the challenges posed by drought and a changing climate.

The purpose of this Roadmap is to clearly define agreed priorities, enabling the Hub and other organisations in southern NSW, to attract and secure investment for key deliverables and to support activities that drive measurable impact.

CONTEXT

Southern NSW Innovation Hub is hosted by Charles Sturt University and receives funding from the Australian Government’s Future Drought Fund. This funding supports core functions such as governance, engagement, and partnerships, along with limited project delivery through partner organisations. Larger, transformative projects usually depend on competitive government grants or, occasionally, industry contributions. While this funding model has enabled important work to be undertaken, a fully integrated program will allow the achievement of long-term, transformational change for genuine drought and climate resilience across farming systems or rural and regional communities of southern NSW.

This Roadmap works within these constraints, aiming to use available resources as effectively as possible while continuing to pursue opportunities for more sustainable and coordinated funding.

Over a period of two years, the Hub collaborated with partners, farmers, key delivery partners, industry organisations, community groups, First Nations organisations, private organisations, and government agencies to design this program focused on critical impact areas for southern NSW. Importantly, these priorities and impact areas were required to meet social, environmental, and financial themes, ensuring a balanced and comprehensive approach to resilience. This alignment is essential because true drought and climate resilience depend not only on environmental sustainability but also on strong social systems and viable economic outcomes for communities and industries.

This Roadmap will help develop meaningful programs that can attract direct investment and provide an overarching pathway to impact. It will also guide strategic engagement in competitive grant rounds or investment opportunities, ensuring that resources spent on project development contribute to a focused, integrated program of work.

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Impact Areas

The Impact Roadmap is structured around six Impact Areas that together reflect the social, environmental and financial dimensions of resilience:

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1. Enhancing and Preserving the Natural Environment

2. Soil Resilience

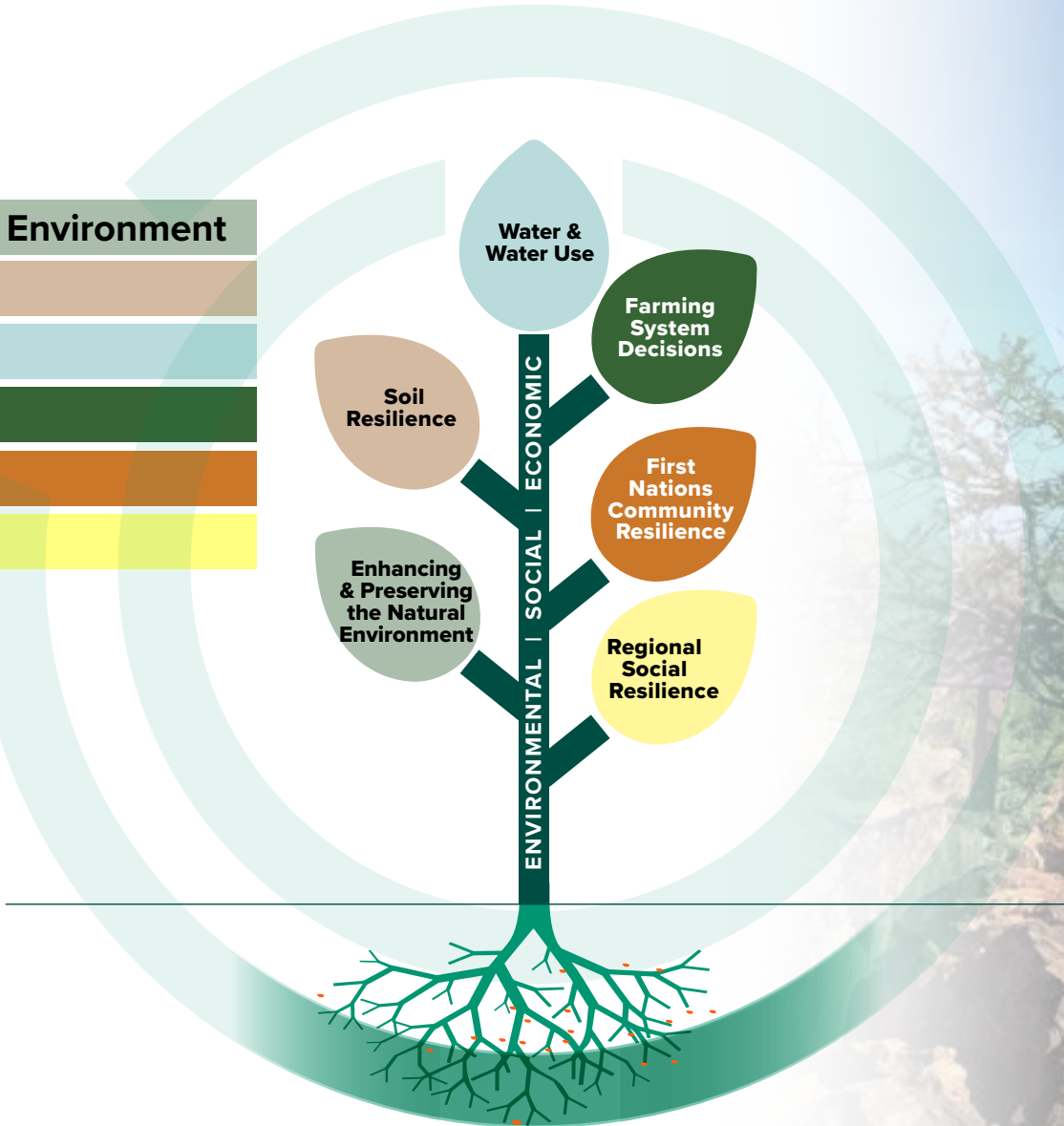
3. Water and Water Use

4. Farming System Decisions

5. First Nations Community Resilience

6. Regional Social Resilience

To ensure clarity and avoid duplication, the Impact Areas have been structured to complement one another. Reviewing all Impact Areas together will provide a comprehensive view of the Roadmap and its strategic priorities.



1. Enhancing and Preserving the Natural Environment

IMPACT AREA OVERVIEW

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The Enhancing and Preserving the Natural Environment impact area seeks to support biodiversity, landscape health and agricultural productivity to create strong, sustainable, drought resilient ecosystems.

Functional landscapes are fundamental to climate adaptation and drought resilience. When ecological connectivity and integrity decline, landscapes become fragmented, degraded and less able to retain moisture, regulate temperature, or recover from climatic stress. Healthy, functioning landscapes provide essential ecosystem services, including habitat, pollination, nutrient cycling, water infiltration, groundwater recharge, moderated surface water flows, and improved catchment-scale water cycling. Land management that enhances soil structure, perennial groundcover and vegetation connectivity supports the natural hydrological processes, strengthens drought resilience and enhances carbon storage and micro-climate regulations underpinning long-term agricultural viability.

These understandings align strongly with First Nations land management practices, which recognise the deep interconnections between soil, water, plants and climate. Embedding opportunities to learn from and engage with First Nations knowledge holders will strengthen landscape stewardship across the region.

Across southern NSW, diverse environments, from floodplains to ranges and rangeland, are increasingly exposed to ecological fragmentation, biodiversity decline and disrupted hydrological processes. These pressures limit water retention, intensify drought and heat impacts and reduce agricultural productivity. Natural assets often remain undervalued within farm decision-making, and limited access to knowledge, confidence, technical support and market incentives constrains their integration into farm business models. Strengthening the alignment between natural

resource management and agricultural profitability is essential to building long-term resilience to drought and climate extremes.

First Nations communities hold place-based knowledge – developed over thousands of years of managing Country. Their approaches to fire, water, vegetation and cultural landscape stewardship offer valuable insights into sustaining resilient ecosystems. The Hub will work alongside First Nations land managers to inform regionally appropriate, climate-resilient practices.

Addressing these interconnected landscape challenges requires coordinated action across multiple climate resilience, natural resource management and sustainable agriculture programs. The Hub will play a targeted, enabling role, complementing existing initiatives and fostering collaboration rather than duplicating delivery. There is a significant opportunity to reframe the perceived trade-offs between production and environmental outcomes. Evidence demonstrates that integrated approaches, such as shelterbelts, native pastures, wetland buffers, and soil biota, deliver multiple co-benefits, including improved water retention, enhanced pasture resilience during dry periods, natural pest suppression and increased system stability under climate variability. Building landholder ecological literacy, confidence and access to practical tools and emerging market mechanisms, including those aligned with Nature Positive frameworks, will support broader uptake of these approaches, strengthen ecosystem function and climate-ready production systems, while enhancing social license and market opportunities.

The Hub will work alongside established regional and national programs focused on climate adaptation, regenerative agriculture and natural capital, ensuring that its activities reinforce and extend, rather than replace, existing efforts.

This investment theme focuses on restoring landscape function and embedding natural resource management within agricultural systems to deliver durable environmental and economic outcomes, strengthen climate adaptation and enhance drought resilience across the region. It also enables two-way knowledge exchange between First Nations land managers and the farming community. Within this Impact Area, the Hub's role is primarily facilitative; supporting knowledge exchange, strengthening linkages between programs, and enabling adoption, while larger-scale environmental and climate resilience initiatives are led by specialist agencies, NRM organisations and government programs.

The Hub recognises that some priorities require long-term, staged progress and may not be fully achievable within a specific timeframe; our role is to build momentum and lay the foundations for enduring change.

IMPACT STATEMENT

Strengthening landscape function and integrating natural assets into productive farming systems



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1. Enhancing and Preserving the Natural Environment



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The Impact Area is structured around two core areas:

- Building awareness, knowledge and capacity for change among land managers and the community using contemporary extension and adoption approaches, and
- Supporting on-ground actions that enhance ecosystem resilience, restore landscape function and support drought resilient agricultural productivity.

Two strategic programs have been identified as impact pathways:

Strategic programs

1.1 Strengthened capacity for integrated land management

Program objectives

This sub-program will focus on building the capacity of farmers, land managers and the community to integrate environmental assets as part of the agricultural production system.

It will improve access to knowledge, information and support, including evidence-based data sources that support decision-making and quantify change. It will actively explore landholder barriers and embed contemporary extension and adoption approaches.

Importantly, this sub-program will increase awareness and build confidence in land managers to understand the value of their natural assets, how it integrates with their production systems, and where to seek support to implement change on their land.

This sub-program will support active investment and ongoing management by farmers in natural assets that provide ecosystem services as part of their core farming business, ensuring ecosystem resilience and farming production co-exist.

Key program elements

- Improving ecological literacy of farmers, land managers, service providers, students and the community
- Leverage current knowledge to build capacity through the translation of existing research, the economics of ecosystem services, benchmarks and decision support tools
- Design targeted and tailored extension and adoption pathways for farmers and land managers, and their trusted service providers that identify and address barriers to transformational change
- Increase understanding of carbon and natural capital market opportunities, and the associated trade-offs and risks, including how these contribute to the emerging Nature Positive approaches.
- Increase understanding of ecosystem services to agricultural systems, such as Integrated Pest Management or livestock health benefits from native vegetation.

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1. Enhancing and Preserving the Natural Environment

1.2 Improved landscape function

This sub-program will create resilient ecosystems that are healthy and connected across agricultural landscapes and catchments. It will focus on the mechanisms and strategies that address the decline of healthy functional landscapes and the barriers to transformational change. This sub-program will deliver on-ground improvements to biodiversity and landscape function, coupled with diverse agricultural production systems that increase ecosystem resilience to drought and the changing climate. It will support climate-appropriate land use, catchment-wide planning and coordination, and the use of First Nations land management practices.

Key program elements

- Identify critical landscape refugia and their key threats and develop programs that target their protection, enhancement, or expansion
- Identify landscape function and biodiversity improvement opportunities in cropping systems and develop programs that support their adoption.
- Identify landscape function and grassland ecosystem restoration opportunities in grazing systems and develop programs that support their adoption.
- Improved management of water across a catchment to protect soils and support agricultural production
- Embed opportunities to learn and share from First Nations knowledge holders.

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ENVIRONMENTAL OUTCOMES

Landscapes with higher biodiversity, stronger ecological connectivity, improved water and nutrient cycling, and active stewardship of native vegetation and riparian zones, resulting in enhanced drought resilience and greater capacity to adapt to a changing climate.



SOCIAL OUTCOMES

Stronger stewardship-focused community networks, higher ecological literacy, and greater pride and ownership of local natural assets, building social licence and strengthened regional identity through intergenerational and cross-cultural knowledge transfer and locally relevant collaboration.



FINANCIAL OUTCOMES

More resilient farm businesses supported by healthy ecological systems, diversified income from environmental markets, reduced exposure to input cost volatility, and improved livestock productivity, contributing to stronger regional brand value and market opportunities underpinned by social licence.



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2. Soil Resilience

IMPACT AREA OVERVIEW

The Soil Resilience impact area seeks to enhance land management practices that increase groundcover and soil water holding capacity to improve soil function, targeted land management practices and a well-coordinated, capable industry that can deliver contemporary extension and adoption practices.

Management of ground cover and soil water holding capacity improves soil resilience, which underpins the environmental, cultural and economic wellbeing of southern NSW. Functioning soils support productive agriculture systems and the integrity of natural ecosystems, biodiversity, carbon sequestration, and the long-term sustainability of landscapes. As climatic variability intensifies, the resilience of soils across farms, rangelands, native grasslands, riparian areas and woodland systems will increasingly determine the region’s capacity to absorb drought, maintain ecological function and sustain livelihoods.

Across both natural and production systems, groundcover is a critical protective asset. It reduces erosion, buffers soil temperatures, stabilises moisture regimes, and safeguards biological activity. When groundcover declines due to limited drought management and preparedness decisions, overgrazing, land clearing or disrupted ecological processes, soils rapidly lose structure, organic matter and the capacity to infiltrate and store water. Protecting and restoring groundcover across diverse land types, from native perennial grasslands and woodland understories to managed pastures and cropping zones, is essential to building resilience at the landscape scale.

Soils across southern NSW exhibit varied degrees of constraint, including historical degradation, nutrient imbalance, low organic matter, compaction, acidification and structural decline. These constraints occur in both farming

landscapes and natural systems such as grassy woodlands, high-country soils, floodplains and rangelands. Regardless of land use, resilient soils share key attributes: strong structure, balanced chemistry, diverse and active biological communities, and enhanced capacity to capture, store and cycle water and nutrients. These attributes support drought-tolerant ecological processes, maintain habitat values, improve water efficiency, and provide the foundation for productive, profitable and ecologically stable landscapes.

Strengthening soil resilience requires lifting capability across all types of land managers, including farmers and small rural landholders. Many do not currently have access to timely soil condition data, diagnostic tools, or trusted guidance on practices suited to their land types. Climate and soil information systems that integrate agricultural and environmental indicators can support earlier, more confident decision-making in both production and conservation settings.

The Hub recognises that some priorities require long-term, staged progress and may not be fully achievable within a specific timeframe; our role is to build momentum and lay the foundations for enduring change.

The Impact Area is structured around three core areas that will drive improved drought resilience:

- Groundcover is the first line of defence in drought management
- Water holding capacity is crucial to soil function
- Industry capacity and coordination are crucial to improve groundcover and soil water holding capacity

Water use efficiency, including optimising plant water productivity and system-level water performance, is addressed in the Water and Water Use Impact Area and complements Soil Resilience priorities.



IMPACT STATEMENT

Soils that can increase or maintain groundcover and water holding capacity in drought conditions

2. Soil Resilience



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Three strategic programs have been identified as impact pathways:

Strategic programs

2.1 Growing industry capacity and coordination

Program objectives

This sub-program will strengthen industry wide capability in soil management by improving access to technical knowledge, soil information and coordinated support networks that enhance drought resilience.

It will build and share skills across advisors, practitioners and land managers, ensuring they have access to the latest soil science, data and decision-making tools.

It will enhance the accessibility and use of soils data for more informed management, increase awareness of available information sources and deliver regionally coordinated extension and adoption activities that minimise duplication of effort.

The sub-program will also identify capability gaps by baselining soils skills and capacity, strengthen professional development pathways, and support mentoring, collaboration and communities of practice to build a skilled, connected and future-ready soil advisory network.

The outcome is a more skilled, connected and well-supported advisory and practitioner network that enables land managers to make confident, evidence-based soil management decisions.

Key program elements

- Identify skills and knowledge gaps in land managers, practitioners and advisors and design contemporary extension and adoption programs to address them
- Coordinate events across the network to maximise collaboration and value-add while reducing duplication and improving alignment of regional priorities
- Identify and promote the pathways to developing soils advisors' technical expertise and communication skills, including career development and mentoring opportunities
- Facilitate mentoring and technical development for early career soil professionals to expand regional advisory capacity and increase producer access to high-quality guidance
- Develop a regional Community of Practice to share innovation, resources and cross-sector knowledge.

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2. Soil Resilience

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2.2 Groundcover management

Program objectives

This sub-program will improve and maintain groundcover across agricultural and natural landscapes by strengthening the knowledge, tools and management practices that protect soil function, support water infiltration, sustain biological activity and enhance landscape resilience.

It aims to ensure desirable groundcover is retained at critical times of the year, enable regionally tailored approaches that reflect local groundcover dynamics, improve decision-making through timely and targeted data, build capacity to understand thresholds and triggers for intervention, and enhance monitoring through integrated remote sensing and on-farm observations.

It will also support regional demonstration and extension activities and the development of landscape-specific benchmarks to guide adaptive management and improve adoption.

Key program elements

- Develop and promote decision support tools on groundcover thresholds and trigger points including total grazing pressure of pests
- Establish demonstration farms using diverse, region-appropriate strategies to maintain groundcover
- Support extension campaigns highlighting the importance and productivity and economic value of groundcover
- Facilitate approaches on whole-of-system groundcover management.
- Develop landscape specific groundcover benchmarks for ongoing monitoring and adaptive management
- Integrate satellite data and digital tools into farm-level planning and seasonal forecasting
- Explore and implement groundcover conservation practices including pasture optimisation, landscape rehydration, and soil fertility management.



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2. Soil Resilience

2.3 Increase water holding capacity

Program objectives

This sub-program focuses on strengthening the capacity of soils to function effectively across their physical, chemical and biological domains, with a direct influence on improving water holding capacity, increasing plant available moisture and supporting broader landscape rehydration.

It will build technical knowledge, support innovation in soil management and promote active monitoring and adaptive decision-making informed by soil condition.

Recognising the diversity of soils and production systems across southern NSW, this sub-program will address major soil constraints at landscape scale and identify region-specific pathways to improve soil function and enhance water holding capacity.

It will also support consolidation of existing data into actionable information for more confident, evidence-based decision-making by land managers.

Enhance decision support tools that incorporate economic considerations to guide practical and profitable on-farm soil resilience planning.

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Key program elements

- Consolidate regional soil data baselining using existing and new data to identify priority areas for improvement
- Pilot decision tools that integrate physical, chemical and biological indicators to support practical on farm planning
- Coordinate extension of soil management practices that address key barriers to improved soil structure and increased water holding capacity
- Link Research between pasture management, variety choices and soil ameliorants, and their impact on soils and sustainability
- Enable soil water holding capacity baselines and monitoring systems that are simple, farmer-friendly and repeatable
- Develop decision support tools that reflect the return on investment and profitability of soil resilience and management investments
- Support on farm soil baselining and long-term resilience planning.



ENVIRONMENTAL OUTCOMES

Improved soil condition across southern NSW, reflected in reduced erosion, stronger and more stable groundcover, greater soil moisture retention, enhanced soil carbon and structure, healthier root zones, increased infiltration, and more active and diverse soil biotic communities. These improvements support better landscape rehydration, reduce nutrient and sediment loss, and strengthen the long-term ecological resilience and functioning of both natural ecosystems and productive landscapes under a changing climate. They will also reduce the impact of drought on air and water pollution.



SOCIAL OUTCOMES

Stronger understanding and valuing of soil protection across farming communities, supported by improved skills, greater confidence in soil management practices and reduced risk of soil damage during drought. Enhanced peer networks, advisory capacity and knowledge exchange strengthen community cohesion and support the next generation of soil managers, contributing to more resilient, informed and collaborative land stewardship.



FINANCIAL OUTCOMES

Improved soil resilience leads to reduced input costs through better moisture retention, fewer resowing requirements and lower erosion related remediation expenses, while supporting more stable yields across variable seasons. Enhanced soil function delays the onset of drought impacts, increases productivity during dry periods and strengthens long-term profitability, contributing to more financially resilient and sustainable farming systems.

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3. Water and Water Use

IMPACT AREA OVERVIEW

The Water and Water Use impact area aims to strengthen the capacity of producers and water users to plan, manage and optimise surface water, including irrigation water and groundwater cycles under increasingly variable and challenging climatic conditions. Reliable access to good quality water is fundamental to animal welfare, farm productivity and ecosystem services, and is a major determinant of drought resilience across southern NSW.

2025 Murray Darling Basin Authority (MDBA) Sustainable Yields project assessments indicate the high likelihood of declining cool-season rainfall, reduced runoff and more frequent, severe droughts for the southern Murray-Darling Basin. In the southern Basin, hotter, drier conditions and declining flows will continue to reduce farm surface water and groundwater reliability, increasing risks to animal welfare and underscoring the urgency of improving water planning and resilience. Southern Basin irrigators face additional pressure to adapt in response to the largest declines in runoff and the greatest allocation uncertainty under all climate scenarios.

In livestock systems, producers face growing pressure from declining water quantity and quality during dry periods, coupled with limited tools for anticipating shortages or assessing system vulnerabilities. Improved planning, monitoring and infrastructure are essential to safeguard animal welfare, reduce production losses and support timely, confident decision-making.

For irrigated agriculture and horticulture, fluctuating water allocations, rising prices, ageing infrastructure and limited data integration create significant challenges for managing water at farm and catchment-scales. Efficient, adaptive irrigation systems require access to reliable data, benchmarking, modelling tools and water literacy to support water users' decisions

relating to crop choice, tree and vine productivity and longevity, seasonal planning, infrastructure investment and risk management. Understanding water productivity at crop, system and landscape levels is critical to long-term resilience and profitability.

This impact area focuses on building producer and water user capability to make more efficient and productive use of water in farm operations. Investments aim to improve water literacy, strengthen access to trusted decision support tools and enhance system design for sustainable and climate-responsive water management across livestock and irrigated farming systems. Together, these actions will reduce pressure on vulnerable water sources, enhance landscape hydration and help producers and water users make informed decisions that improve animal welfare, productivity, and business resilience and ecosystem health. Water use efficiency, including optimising plant water productivity and system-level performance is incorporated in this area, and complements Soil Resilience priorities.

The Hub recognises that some priorities require long-term, staged progress and may not be fully achievable within a specific timeframe; our role is to build momentum and lay the foundations for enduring change.

The Impact Area is delivered through two core components:

- Water management in livestock systems to support animal welfare, productivity, ecosystem health and drought resilience
- Water management in irrigated agriculture and horticulture to improve water efficiency and productivity, and catchment-scale planning and adaptive decision-making, while maintaining ecosystem health.



IMPACT STATEMENT
Strengthening responsible water resource management to improve agricultural productivity and ecosystem health.

3. Water and Water Use

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Two strategic programs have been identified as impact pathways:

Strategic programs

3.1 Managing water for livestock

Program objectives

This sub-program aims to strengthen producers' capacity to manage livestock water supply, quality and reliability for improved animal productivity and welfare, and business resilience in increasingly variable seasonal and climatic conditions.

Producers will develop a clearer understanding of livestock water requirements when grazing or in containment, the importance of ground and surface water quality, and operational trigger points for decisions that improve drought resilience.

Investments will build producers' knowledge and confidence to identify and address key constraints such as pumping capacity, evaporation losses and regulatory settings; support improved planning, infrastructure investment and effective use of livestock water monitoring and management systems; and raise awareness of the co-benefits of enhancing the ecosystem of on-farm water storages and systems.

The sub-program will leverage network and industry capacity in monitoring, planning and managing livestock water to support informed decisions by livestock producers that build drought resilience.

Contemporary extension and adoption approaches will support behaviour change and the uptake of improved practices. This includes the integration of digital technologies, remote sensing, automated monitoring systems and decision support tools to track water levels, assess quality and identify vulnerabilities in real time.

Key program elements

- Develop and deploy practical tools for farm-scale water assessment and mapping, including analysis of current capacity, future system needs and infrastructure design
- Increase awareness of dam efficiency, evaporation management and water storage strategies to maximise reliability and value
- Strengthen understanding of the relationship between water quality and livestock performance through targeted research, knowledge collation and contemporary extension and adoption approaches
- Share case studies on confinement feeding systems and efficient livestock watering practices
- Facilitate farmer-to-farmer knowledge exchange on water planning strategies and their application to farm business operations.

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3. Water and Water Use

3.2 Water productivity – irrigated agriculture

Program objectives

This sub-program aims to improve on-farm water productivity and strengthen catchment-scale understanding of water availability and use under increasingly variable climatic conditions. It focuses on enhanced data, benchmarking, decision support tools and infrastructure strategies to enable efficient, adaptive and economically viable irrigation systems, supporting agricultural, horticultural and environmental outcomes.

It will build understanding of water dynamics across the broader landscape and how they interact with farming systems and permanent plantings. It will assist irrigators to plan and manage water use more effectively through improved productivity benchmarks, water literacy and application of decision support tools for water planning, trading and risk management.

The sub-program will identify gaps in research, data, system design and knowledge, design initiatives to fill these gaps, and use contemporary extension and adoption approaches to drive change.

Key program elements

- Design and implement field trials and benchmarking programs comparing water use, productivity and environmental impacts across winter and summer cropping, fodder and horticultural irrigated systems
- Support the development and adoption of tools for crop-level water return on investment (ROI) assessment and seasonal water planning to allow flexibility during drought
- Establish capacity building programs to improve water literacy, market participation and understanding of allocation, trading and risk
- Integrate soil, water and crop data to underpin advanced decision support tools for irrigation management and drought resilience metrics
- Pilot natural capital valuation approaches for irrigated agriculture and horticulture to inform long-term sustainability and investment decisions.



ENVIRONMENTAL OUTCOMES

Improved management of livestock, perennial plantings and irrigation water reduces pressure on vulnerable water sources, strengthens riparian zone condition and enhances the sustainability of farm water storages. More efficient water use helps maintain environmental flows, supports landscape hydration and reduces stress on natural systems during dry periods.



SOCIAL OUTCOMES

Higher standards of animal care and improved wellbeing for producers through clearer, more confident decision-making during difficult seasonal and climatic conditions. Strengthened community trust and reduced conflict as informed, transparent water decisions support fair and equitable access across users.



FINANCIAL OUTCOMES

Reduced livestock losses, improved weight gain, longer-lived perennial plantings and greater system efficiency, lowering labour demands and operational costs. Higher production and returns per megalitre of water, particularly when water is scarce, combined with improved business planning and more resilient farming systems, contribute to stronger long-term financial performance and reduced exposure to climatic and market shocks.

4. Farming System Decisions

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IMPACT STATEMENT
Farmers navigate drought and climate challenges and make informed decisions that build farm system resilience and profitability.



IMPACT AREA OVERVIEW

The Farming System Decisions impact area aims to strengthen farmers’ skills and confidence to make informed decisions aligned with their farming system goals, thereby improving resource management, climate adaptation and drought resilience.

Across southern NSW, farmers routinely manage a wide range of interdependent decisions on resource allocation, enterprise mix, input use and environmental trade-offs while navigating increasingly complex seasonal, market and climate-related decisions.

Limited access to relevant data, or the capacity to interpret it, can constrain adaptive and transformational responses on-farm and reduce the ability to plan effectively.

A future with more frequent and severe climate variability demands clear, confident and timely on-farm decisions.

Supporting farmers to set long-term goals, define risk thresholds and adapt or transform their farming practices enhances the resilience of individual enterprises and contributes to the stability of regional food and fibre systems. Programs that facilitate locally relevant knowledge exchange, strengthen decision-making capability and reduce decision fatigue will be critical to building adaptive capacity.

When farmers have the skills and confidence to anticipate future scenarios and respond to dynamic conditions, their sense of agency, wellbeing and self-belief increases. This enables them to make informed choices that support the sustainability of their business, their family and their community, while reducing stress and decision overload during drought and other climatic events. Improved decision-making is supported by access to trusted data, peer networks and tools.

This capacity to anticipate, persist and adapt following periods of disruption contributes to stronger farming families, a more resilient agricultural sector, healthier rural communities and more robust ecosystems.

The Hub recognises that some priorities require long-term, staged progress and may not be fully achievable within a specific timeframe; our role is to build momentum and lay the foundations for enduring change.

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4. Farming System Decisions

Strategic programs

4.1 Implement resilient farming systems and production decisions

Program objectives

This sub-program will support farmers to confidently assess and adopt resilient farming system models and make enterprise decisions that balance risk, profitability and sustainability. It focuses on equipping farmers with practical tools, trusted data and relevant knowledge to adapt production systems to changing seasonal conditions, and behavioural insights to engage in continuous learning and adaptation.

It will build farmers' capacity for robust, farm-level decision-making aligned to long-term farm resilience goals, and support the adoption of farming systems suited to the diverse agroecological conditions across southern NSW.

The sub-program will strengthen data literacy, improve the transformation of farm data into useful knowledge, and facilitate evaluation of enterprise options, diversification pathways and scenario planning. It will also improve access to locally relevant and trusted information sources, advisory and coaching services and peer networks.

Key program elements

- Strengthen farmers' decision-making skills and confidence to anticipate future scenarios and prepare for multiple possible futures and dynamic situations.
- Leverage existing knowledge and build capacity through improved access to whole farm data management, decision support tools, contemporary extension and adoption approaches, and behavioural insights.
- Build farmer confidence and positive mindsets to implement drought and climate stress decisions in a timely and strategic manner, so farmers have back up plans ready to go and feel prepared to manage the impacts.
- Support tailored farm management approaches that optimise profitability and sustainability.
- Build capability to evaluate enterprise mixes and income diversification opportunities.
- Improve access to trusted decision support, advisory and coaching services and peer learning networks that can build farmer capacity to break down a large decision, get to today's action and reflect on and learn from the outcome.



5. First Nations Community Resilience

IMPACT AREA OVERVIEW

The First Nations Community Resilience impact theme seeks to strengthen the capacity, leadership and self-determined participation of First Nations peoples in southern NSW to prepare for, manage through, and recover from drought and climate impacts. This theme builds on the cultural, economic and social resilience of First Nations communities through caring for people and Country.

First Nations communities across southern NSW experience drought and climate change in ways that are deeply intertwined with cultural identity, ecological knowledge, and ongoing connection to Country. These impacts extend far beyond environmental change; they shape community wellbeing, cultural practice, livelihoods, and the social fabric of communities.

For Aboriginal people, the health of Country is inseparable from the health of community. When waterways dry, species decline, and landscapes deteriorate, the effects are profoundly cultural, spiritual and emotional. Reduced access to bush tucker, medicines, and culturally significant species undermines cultural practices, food security, and knowledge transmission. Drying waterways disrupt gatherings, ceremony, and access to sacred places, with exposed or damaged cultural sites contributing to deep cultural distress.

These environmental disruptions take a significant social and emotional toll. Many communities describe grief, anxiety, frustration, and a sense of powerlessness in the face of “unwell Country.”

Drought and climate change also affect economic stability and livelihoods, with declining water availability and loss of land-based or irrigation-related work compounding existing disadvantage. Limited access to alternative employment or resource pathways further increases vulnerability.

Cultural misunderstandings continue to intensify these challenges. Assumptions that Aboriginal people are inherently more resilient to drought overlook the significant ecological and social changes imposed through ongoing colonisation. Traditional adaptive knowledge does not automatically translate to resilience within altered landscapes and contemporary pressures.

Coastal Aboriginal communities face similar pressures, often through different mechanisms. Drought related bushfires and floods expose or damaged cultural sites, bush medicines, disrupt marine species. Such damage hinders access to traditional food and medicines. Moreover, communities consistently emphasise that when Country is unwell, people become unwell too.

Layered over these direct impacts are broader systemic vulnerabilities. Limited access to traditional lands and waterways, disrupted cultural economies, gaps in participation in mainstream planning, and reduced opportunities for intergenerational and cross-cultural knowledge transfer all weaken community resilience.

At the same time, First Nations knowledge systems , which are rich in ecological indicators, seasonal cues, cultural land management, and water stewardship, remain vital strengths. These knowledge systems offer essential insight into environmental change, resilience pathways, and sustainable land stewardship. Indeed, such knowledge is vital for our ability to mitigate the impact of drought.

However, modern frameworks such as Indigenous Cultural and Intellectual Property (ICIP), data sovereignty, and cultural sensitivity must be understood and respected by both First Nations people and the broader public. These frameworks are critical for ensuring that Indigenous knowledge is protected, that data and cultural information are managed appropriately, and that

engagement with Aboriginal communities is undertaken respectfully and safely. Building cultural capability, particularly among those working in natural resource management, research, policy, and regional development, is essential to fostering genuine partnership, ethical collaboration, and culturally informed drought resilience.

Together, these insights highlight the need for resilience approaches that honour cultural values, support wellbeing, enable strong participation and leadership, and recognise the deep connection between people and Country. By centring cultural authority, strengthening knowledge systems, and supporting communities to care for Country, more effective and enduring resilience to drought and climate change can be achieved.

The Hub supports First Nations communities through a dedicated First Nations Engagement Officer and the First Nations Engagement Group (FNEG), which provides culturally informed guidance, community-scale co-design and oversight of the Hub’s First Nations activities. These structures ensure engagement is respectful, community-led and aligned with cultural authority and enables flexibility to design the sub-program key elements alongside the communities the Hub works with. Therefore, this Impact Area looks different to the other Impact Areas.

The Hub recognises that some priorities require long-term, staged progress and may not be fully achievable within a specific timeframe; our role is to build momentum and lay the foundations for enduring change.

Four strategic programs have been identified as impact pathways, all intersecting with and connected to the core themes of Country and Community:

IMPACT STATEMENT

Supporting resilient First Nations communities by caring for people and Country in the face of increasing drought and climate change



5. First Nations Community Resilience

Strategic programs

5.1 Grow our knowledge (Knowledge partnership and two-way learning)

Program objectives

This sub-program strengthens drought resilience and climate adaptation by supporting two-way learning between First Nations communities, the Hub and broader stakeholders. This sub-program recognises the importance of First Nations knowledge systems; grounded in cultural authority, land stewardship and deep environmental understanding, alongside western knowledge. It focuses on building mutual understanding of the challenges First Nations communities face and fostering collaborative approaches that keep Country and communities strong. The sub-program also prioritises increasing the Hub's and the public's awareness of appropriate cultural protocols, ensuring engagement is respectful, safe and aligned with First Nations expectations and cultural authority.

5.4 Economic participation and local livelihoods

Program objectives

This sub-program strengthens drought resilience and climate adaptation by supporting culturally grounded employment and leadership pathways connected to caring for Country. This includes enabling climate-resilient food and fibre initiatives, such as native bush food and land-based social enterprises, that reinforce cultural economies and diversify local livelihoods. The sub-program also promotes career pathways for young First Nations people, equipping emerging leaders with the skills and opportunities to steward Country, respond to climate impacts and contribute to strong, self-determined community futures.

5.2 Strong Country and land management

Program objectives

This sub-program supports drought resilience and climate adaptation by empowering First Nations Elders and leaders to guide the design and delivery of projects that care for Country and protect natural and cultural resources. Recognising the profound impacts of drought and climate change on landscapes, waterways and cultural heritage, this sub-program strengthens culturally led land management, restoration and stewardship practices grounded in traditional knowledge. By centring Elder authority and community leadership, the program enhances the long-term health of Country and supports resilient cultural landscapes for future generations.

5.3 Cultural continuity

Program objectives

The cultural continuity sub-program supports drought resilience and climate adaptation by enabling First Nations communities to maintain and strengthen the transmission of cultural knowledge, practices and language to younger generations. With land degradation and climate impacts threatening access to cultural resources such as water, fish, bush foods and medicines, this sub-program works alongside communities to create opportunities for cultural learning, on-Country activities and intergenerational knowledge exchange. By supporting culturally grounded programs led by Elders and knowledge holders, the sub-program helps safeguard cultural identity, strengthen community wellbeing and ensure the continuity of cultural practices essential to caring for Country.

Country and Community

5. First Nations Community Resilience



ENVIRONMENTAL OUTCOMES

The health of Country improves through culturally led land and water management that restores and protects cultural landscapes, species and ecological indicators. Guided by First Nations knowledge systems, stewardship practices strengthen ecological function and increase the adaptive capacity of Country to withstand drought and climate impacts.



SOCIAL OUTCOMES

Cultural continuity is strengthened as Elders lead on-Country learning, language and knowledge transfer to younger generations, reinforcing identity, wellbeing and connection to Country. Communities experience greater resilience through self-determined participation and leadership, while cultural capability across stakeholders ensures engagement is respectful, safe and aligned with cultural authority.



FINANCIAL OUTCOMES

Local economic resilience grows through culturally grounded livelihood pathways linked to caring for Country, including climate-resilient food and fibre enterprises such as bush foods and land-based social ventures. Diversified income streams, increased local employment and clear leadership pipelines enable First Nations people to steward Country, respond to climate impacts and build strong, self-determined futures.



6. Regional Social Resilience

IMPACT AREA OVERVIEW

The Regional Social Resilience impact area strengthens the ability of rural and regional communities to anticipate, adapt to and recover from the impacts of drought and climate variability. While the Future Drought Fund invests broadly in social resilience initiatives, the Hub’s role is deliberately strategic and enabling, focusing on cross-regional systems, structures and insights that support communities collectively rather than delivering services at the individual community level. This Impact Area is explicitly positioned as the region’s “social operating system” that enables other Impact Areas to succeed by improving connectivity, information flows and collaboration across stakeholders and places.

Resilience depends on communities having access to trusted information, coordinated support and the capability to plan before, during and after drought. This includes mobilising social, cultural, financial and physical resources, understanding vulnerabilities across regions and enabling timely, evidence-based decision-making. Improving the confidence of communities to act collectively and ensuring frontline workers and key local leaders are equipped to support them directly enhances long-term adaptation and recovery. The primary leverage points for the Hub are trusted intermediaries and networks (eg, government extension staff, agricultural advisors, Landcare and NRM coordinators, Rural Financial Counsellors, Rural Adversity Mental Health program staff, Charities, health and community frontline workers, volunteer leaders, industry bodies) through whom knowledge travels, and action is coordinated.

The Hub also plays a key role in showcasing effective drought resilience initiatives and facilitating knowledge exchange across regions. By elevating community-generated insights, sharing lessons learned and highlighting practical examples of what works in different contexts, the Hub strengthens cross-community learning and accelerates the adoption of proven

resilience approaches. This visibility supports better decision-making and ensures communities can draw on broader evidence base when preparing for, responding to and recovering from drought. We will intentionally support the network layer as a strategic asset, building network strength, connectivity, diversity and redundancy so that innovations diffuse faster and coordination emerges when it matters.

Through targeted initiatives, the Hub strengthens community decision-making, improves access to support and resources and builds the structures needed for effective implementation and adoption. This approach reinforces community agency, supports collaboration across stakeholders and enhances the capacity of regional systems to address both current and emerging drought challenges. Where relevant, this Impact Area will connect to and enable other Impact Areas by providing the social and institutional scaffolding of shared information, intermediaries, coordination and workforce capability which is required for adoption at scale.

The Hub recognises that some priorities require long-term, staged progress and may not be fully achievable within a specific timeframe; our role is to build momentum and lay the foundations for enduring change.

The Hub’s work in this impact area is centred on three priorities:

1. Strengthening community decision-making through improved access to reliable data, information and planning resources.
2. Improving access to support and resources that prepare communities to mobilise during periods of stress and change.
3. Enabling implementation and adoption by building the structures, connections and workforce capability required to support communities through drought.

IMPACT STATEMENT
Improved regional preparedness that enables rural and regional communities to prepare for, and manage through, drought



6. Regional Social Resilience

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The following three sub-programs will achieve this:

Strategic programs

6.1 Enable community-scale decision-making

Program objectives

This subprogram focuses on strengthening the capacity of communities to make timely, informed and adaptive decisions.

It improves access to reliable data, trusted information and planning tools, and enhances communication and coordination across stakeholders.

The goal is to empower communities with the clarity and capability needed to prepare for and navigate drought through collective and proactive decision-making.

Key program elements

- Enable access to accurate, evidence-based information
- Develop and expand community resilience dashboards and data sharing platforms
- Leverage existing knowledge sources and ensure communities can readily access reliable drought and climate information
- Strengthen connections between the community, service providers and decision makers.

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6. Regional Social Resilience

6.2 Community access to support and resources

Program objectives

This subprogram strengthens the ability of communities to access and mobilise the financial, physical, social, cultural, mental and cognitive resources required to cope with and adapt to drought.

It centres on improving access to trustworthy information, fostering knowledge sharing and ensuring communities have the skills and support structures needed to address current pressures and build future resilience.

It also strengthens cross-regional learning by showcasing successful, community-driven drought resilience initiatives and supporting the exchange of practical insights and locally generated knowledge.

Key program elements

- Develop new, fit-for-purpose resources where gaps exist
- Promote cross-sector knowledge exchange, including sharing of lived experience and practical adaptations and curate this knowledge
- Showcase effective drought resilience building initiatives
- Connecting key services into vulnerable communities or with at-risk groups
- Facilitate mental health literacy through networks via partner-led delivery.

6.3 Supporting communities to adopt and implement change

Program objectives

This subprogram builds the structures and workforce capability that enable communities to adopt and implement resilience practices.

It recognises the essential role of frontline workers, service providers and key local influencers during periods of stress, and supports them through training, resilience-building initiatives and stronger connections across community networks.

Its focus is on empowering communities to take ownership of change, maintain wellbeing and apply effective adaptation strategies throughout the drought cycle.

Key program elements

- Provide training and tools to enhance community capacity
- Strengthen the connection between the community and service providers to drive self-care and agency
- Provide training to frontline workers and key individuals who support primary producers and rural and regional communities



ENVIRONMENTAL OUTCOMES

Communities anticipate and manage climate and drought risks through data-driven planning and adoption of sustainable practices, improving landscape condition and long-term resource stewardship.



SOCIAL OUTCOMES

Communities are more connected and confident, with trusted information, strong networks and equipped frontline workers enabling coordinated action and sustained community wellbeing across the drought cycle.



FINANCIAL OUTCOMES

Regional economies experience reduced drought-related losses and improved stability through timely, evidence-based decisions, activation of supports and the adoption of resilience practices that sustain business continuity and regional prosperity.



We respectfully acknowledge the traditional owners and custodians of the lands on which we live and work together. Southern NSW Innovation Hub and Charles Sturt University pay respect to Elders within First Nations communities and acknowledge the continuity of cultures, languages, leadership and knowledge systems.

We acknowledge First Nations peoples’ continuous connection to Country, recognising the unique, diverse identities and cultures of peoples in our communities, regions and nation.

As such, we value the collaboration to strongly position First Nations peoples in our organisation, through languages, leadership, cultures, knowledges, research and ceremonies.



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Impact Roadmap

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SOUTHERN NSW
Innovation Hub
SUSTAINABLE AGRICULTURE,
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