



**REGIONAL
AUSTRALIA
INSTITUTE**

CIRCULAR ECONOMY IN ACTION: REGIONAL PERSPECTIVES

INTERGOVERNMENTAL SHARED INQUIRY PROGRAM



OCTOBER 2024

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The Regional Australia Institute (RAI) is the nation's first and only independent think-tank dedicated to empowering Australia's regions. We are a not-for-profit organisation that undertakes research to inform, educate and activate our rural and regional communities.

The RAI celebrates 13 years in 2024. We are proud of the vast array of research, data, and detailed insights the RAI has provided into many of the significant issues and challenges facing regional Australia. The work of the Institute is made possible through research partnerships with federal, state and territory governments, the national Regions Rising event series, regional consultancy projects, membership, and philanthropic funding.

In 2022, the RAI launched the *Regionalisation Ambition 2032 - A Framework to Rebalance the Nation*. The Ambition is a 10-year plan for regional Australia that seeks balanced growth across our nation's regional towns and cities. It outlines key targets, actions and benefits that will contribute to building prosperous regional communities, and a stronger Australia.

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We care about the regions, because when our regions are strong, Australia is strong.

ABOUT THE INTERGOVERNMENTAL SHARED INQUIRY PROGRAM

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EXECUTIVE SUMMARY

THE TRANSFORMATION TO A CIRCULAR ECONOMY IS FUNDAMENTAL FOR SUSTAINABLE ECONOMIC GROWTH AND ENABLING THE TRANSITION TO NET ZERO, WITH REGIONAL AUSTRALIA AT THE FOREFRONT OF OUR NATIONAL PROGRESS.

Regional Australia’s population is approaching 40% of Australia’s population and is home to many of the industries that will drive our future economy – such as agriculture, renewable energy, manufacturing and critical resources. Regional Australia also has a great deal to lose, with regional areas disproportionately impacted by the impacts of climate change and resource scarcity.

The aim of this report is to explore how Australian regions are fostering and advancing the circular economy – a sustainability model for the efficient use of resources and waste reduction. It is designed to serve as a resource for policymakers, industry leaders and community organisers looking to advance circular economy principles to foster sustainable and resilient regional economies.

Although there is broad research on the circular economy and practices emerging in urban areas, there has been limited focus on the progress of the circular economy in regional Australia.

Research insights are gleaned from a domestic and international literature review, a national policy review, plus six regional case studies. These case studies explore the factors that drive circular initiatives in the target regions, explore barriers, and identify key stakeholders and their collaborative contributions.

The case study regions – Bega Valley (NSW), Limestone Coast (SA), Albury (NSW), Launceston (Tas), Rockhampton (Qld) and the Central Desert (NT) – are a mix of coastal and inland regions of different sizes across the states and territories.

They provide examples of leadership and innovation across a variety of circular economy functions including waste management, food production and environmental regeneration. They also demonstrate that place-based approaches, regional strategies and innovative collaborations are popping up across regional Australia, often stimulated by visionary local leadership, entrepreneurship and community action.

Broadly, however, circular economy action is still in its early stages in most regions, with an almost exclusive focus on the waste management cycle in regional planning and strategies. This reflects the current national policy

orientation and demonstrates the need for continued development of policy and regulatory frameworks to attract investment, encourage innovation and develop circular economy infrastructure in the regions.

Regional areas face a number of challenges, often in contrast to their urban peers, including infrastructure gaps, regulatory barriers and financial limitations. This report showcases collaborative efforts between governments, businesses, educational institutions and communities to surmount these obstacles. It highlights the critical role of leadership and community engagement in driving the transition towards more sustainable economic models.

The following recommendations have been made:

- Establish a dedicated authority within state and territory governments to coordinate and promote circular economy activities, including a focus on regional communities.
- Review the National Waste Policy and Action Plan to comprehensively address upstream processes and facilitate equal participation across urban and regional areas.
- Establish state-level circular economy data hubs that aggregate and summarise waste generation and material flow data collected by councils.
- Establish a regional investment fund for circular economy initiatives.
- Ensure that local, state, and national regulatory frameworks are aligned so that circular economy initiatives in regions can scale effectively without being hindered by conflicting policies.
- Develop information and education campaigns across all levels of government, industry and community to promote circular practices.
- Provide financial, technical and logistical support to grassroots movements and local initiatives that promote circular economy practices.

Regional communities will need to play a leadership role in the transition to circular economies if Australia is to reach its net zero targets. To empower regions to realise this potential, governments at all levels must continue to champion the concept and create the enabling environment for regions to build sustainable circular futures.

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OVERVIEW OF KEY FINDINGS

LEADING REGIONS CAPITALISE ON EXISTING STRENGTHS

Regions with strong circular economy practices have leveraged their unique attributes. For example, Albury has utilised its location between Sydney and Melbourne to create a recycling hub that can service both major capitals. The Limestone Coast region, around Mount Gambier, capitalises on existing sustainable practices in traditional industries such as forestry, to lead the community in other circular economy activities.

NEW JOB CREATION AND INNOVATION

Regions taking an active role in circular economy activities are generating new jobs in areas such as waste management and demonstrating innovation in product development and commercial partnerships.

REGIONS FACE UNIQUE CHALLENGES

Many regions share common challenges that differ from urban areas. For example, transportation costs for materials and recyclable products in and out of regional areas impacts financial performance and viability of circular economy activities. Similarly, geographic isolation and small population size may inhibit investment. These challenges are often unique to regional Australia and need to be addressed in national policymaking.

COLLABORATION IS KEY TO ADVANCING THE CIRCULAR ECONOMY

A circular economy requires systems level change; collaboration across multiple systems is critical. Regions leading circular economy activity demonstrate collaboration across multiple areas including public-private partnerships, educational and research alliances and cooperative endeavours within communities. Cooperative alliances enable innovation and help to address the challenges of economies of scale and geographic distance.

REGIONALLY FOCUSED INVESTMENT CRITICAL

Regional Australia requires focused investment to accelerate circular economy practices, addressing challenges unique to regional Australia, such as a lack of infrastructure, transport and geographical challenges and lack of useable industrial land for new facilities.

LACK OF POLICY AND REGULATION COORDINATION BETWEEN LEVELS OF GOVERNMENT LIMITING REGIONS

National and international regulatory frameworks to support circular economy practices are still developing. Current national and state/territory frameworks largely focus on waste management aspects of the circular economy rather than resource management and design. While there are well defined roles for the different levels of government in the circular economy, there is often a lack of coordination and supportive overarching policy architecture. This is limiting regional Australia's ability to expand circular initiatives.

INDIVIDUAL LEADERSHIP OFTEN THE CHANGE CATALYST

Individual influencers championing sustainable practices or innovations are often the catalysts for circular economy adoption and growth in regions. These influencers can be found in entrepreneurial organisations both nationally and locally, within councils or in community groups - highlighting the important role of encouraging individual champions.

LOCAL GOVERNMENT IS A PRIMARY ENABLER OF LOCAL INITIATIVES

Local councils are pivotal in implementing circular economy strategies that fit local and regional needs, such as setting up community recycling or attracting recycling industries. Local councils rely on the support of state and federal policymaking and financial support to facilitate local activity that meets national targets.

COMMUNITY INVOLVEMENT A CRITICAL SUCCESS DRIVER

Information, education and community engagement are critical to advancing the circular economy. The effectiveness of circular economy initiatives hinges on aligning efforts with community values and expectations, ensuring projects reflect community goals and are therefore supported and sustainable.

POLICY RECOMMENDATIONS

Based on the research findings outlined in this report, the RAI offers the following policy recommendations:

RECOMMENDATION 1:

Establish a dedicated authority within state and territory governments to develop policy, coordinate planning and facilitate collaboration for circular economy activities.

Based on the models of Sustainability Victoria and Green Industries SA, this authority should include a specific focus on regional communities and could offer tools and resources to support communities to access information, training and funding opportunities.

RECOMMENDATION 2:

Review the National Waste Policy and Action Plan to ensure actions relating to industry capacity and infrastructure requirements adequately address regional challenges.

Regions face geographical challenges that add cost and complexity, such as transport and lack of economies of scale. It is important that national plans, when considering investment and infrastructure, view these challenges through a regional lens, to ensure equality with metro areas. Data collection and reporting divided into metropolitan and regional areas can help identify gaps.

RECOMMENDATION 3:

Review circular economy policy to comprehensively address upstream processes such as design innovation, materials substitution, product standards and reduction in resource use.

National circular economy policy should expand beyond the current focus on waste management to encompass upstream processes that encourage broader economic, environmental and social change. This could occur through the Australian Government's proposed national framework for circular economy.

RECOMMENDATION 4:

Establish state-level circular economy data hubs that aggregate and summarise waste generation and material flow data collected by councils.

This would support councils with data and information sharing and help track progress towards circular economy targets.

RECOMMENDATION 5:

Establish a regional investment fund for circular economy initiatives.

The fund would be used to offer low-interest loans or financial guarantees to mitigate the investment risks for smaller councils and communities.

RECOMMENDATION 6:

Ensure that local, state, and national regulatory frameworks are aligned so that circular economy initiatives in regions can scale effectively without being hindered by conflicting policies.

For example, ensuring environmental legislation, waste management protocols and biosecurity requirements are consistent between states would allow regional businesses to transport and recycle waste materials across borders.

RECOMMENDATION 7:

Develop information and education campaigns across all levels of government, industry and community to promote circular practices.

RECOMMENDATION 8:

Provide financial, technical, and logistical support to grassroots movements and local initiatives that promote circular economy practices, such as repair workshops, local recycling programs and community gardens.



01. INTRODUCTION

Australia’s regions will play a pivotal role in the nation’s transition to net zero by 2050 with adoption of circular economy practices a vital, nationwide step in this journey.

How regional communities embrace and drive a circular economy will be defined by how these communities navigate the unique challenges and opportunities that our regions have versus metropolitan areas.

While there is current research on circular economy and practices emerging in urban areas, to date there has been limited research on the progress of the circular economy in regional areas of Australia.

Regional Australia is home to almost 40% of Australia’s population and is growing. Our regions have experienced positive net population growth over cities now for many years – COVID accelerating this trend. Not only are regional populations growing, but Australia’s transition to a net zero economy will play out in regionally based industries, such as agriculture, food, manufacturing and energy production.

It is imperative therefore that our regions become leaders in circular economy practices.

? This research report aims to answer the question: How are Australian regions fostering and advancing the circular economy?

The regions face unique challenges over urban areas, for example the cost and complexity of distance and lack of economies of scale. Understanding how communities are managing these challenges and taking advantage of their existing industries is imperative to help inform national policy makers and investment.

This report aims to provide policymakers and community leaders with data, insights and case studies that will support growth of circular economy activities in our regions into the future.

Included in the report is a multi-dimensional, place-based analysis of regions that are leading circular economy strategies across regional Australia.

Along with case studies from across Australia, a literature and policy review has been undertaken.

Findings of the report highlight the pivotal roles of leadership and governance, innovation and investment, policy and regulation, stakeholder collaboration and community engagement in fostering systems change towards a circular economy.

02. LITERATURE REVIEW

This chapter provides an overview of key concepts and summarises relevant literature on the drivers, benefits and challenges of implementing the circular economy in a regional context.

2.1 WHAT IS A CIRCULAR ECONOMY?

A circular economy is a systems framework that aims to reduce consumption, increase resource efficiency and reduce waste to deliver a sustainable future.¹ In contrast to a linear economy which extracts natural resources and generates waste, a circular economy is based on the recirculation of resources. It offers a pathway to address global challenges like climate change, biodiversity loss, waste and pollution. A circular economy consists of three core elements, driven by design:

- Eliminate waste and pollution
- Circulate products and materials at their highest value
- Regenerate natural systems.²

Within a circular economy, products are designed for maximum use and are recycled, remanufactured or reused.

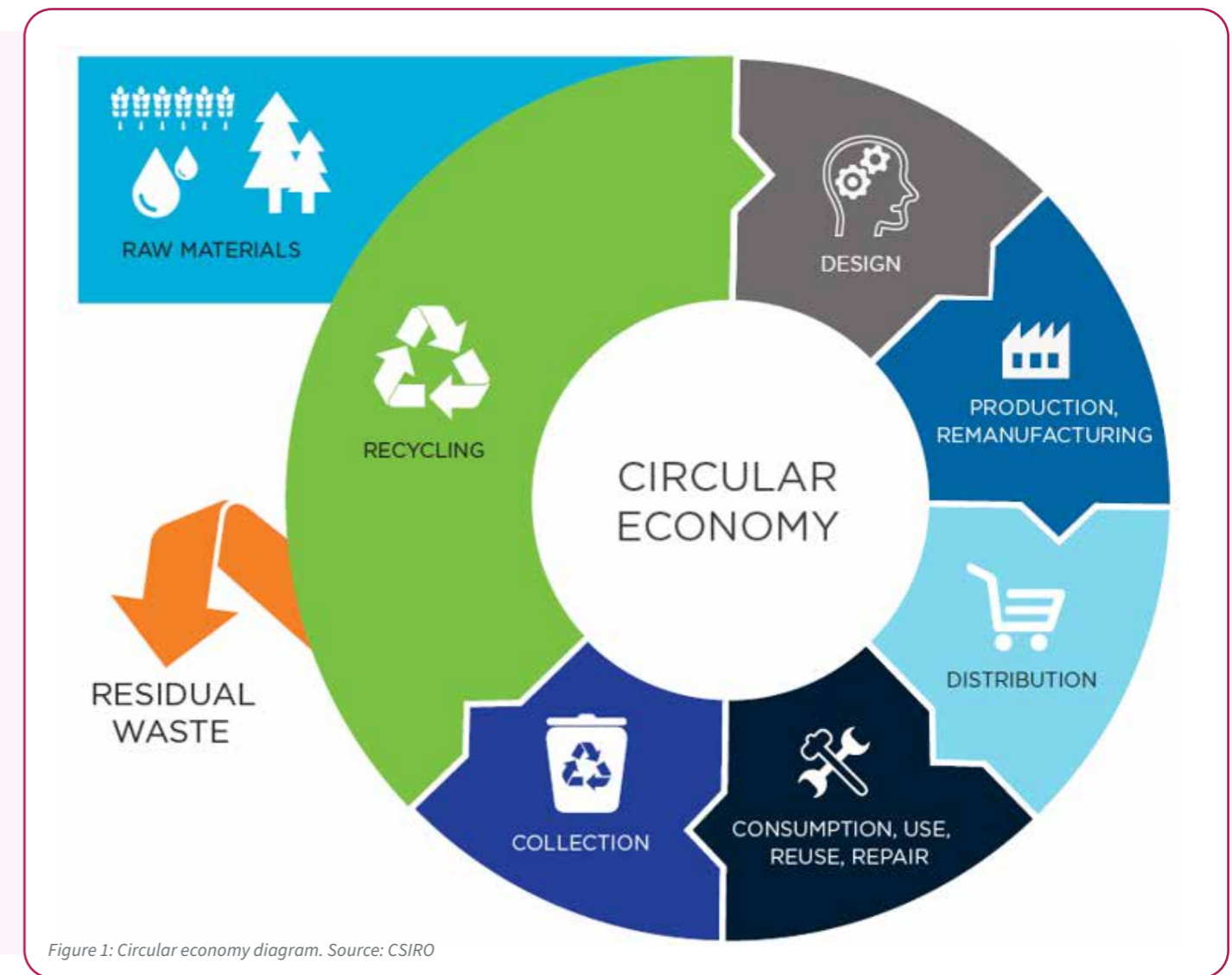


Figure 1: Circular economy diagram. Source: CSIRO

The concept of circularity can be expressed as a series of loops based on the reduction and recirculation of natural resources which are regenerative and restorative, resembling biological or ecological loops.

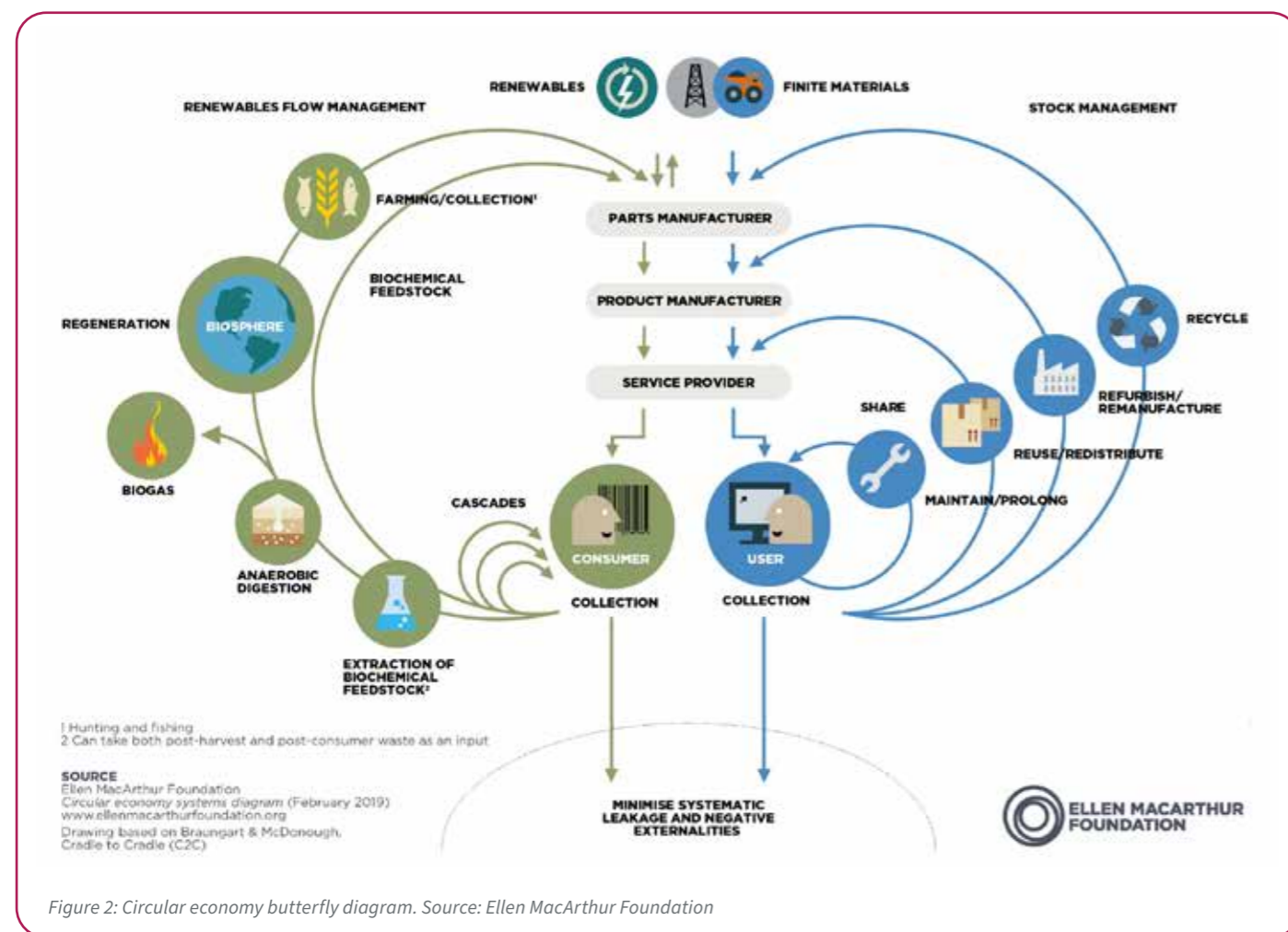


Figure 2: Circular economy butterfly diagram. Source: Ellen MacArthur Foundation

2.2 CIRCULAR ECONOMY AS A SYSTEM

Like other regional systems, the circular economy can be understood as a system, an interconnected set of elements that operate together to achieve an outcome. This understanding can be used to guide our actions to advance and implement circularity in regional Australia.

The circular economy operates at different levels: international trade³ national, regional and local waste management and resource recycling systems; circular business models and supply chains; and as grassroots circular economy practices.

However, the circular economy is much broader than economy alone. With a long-term orientation, the transition to circularity is a whole of society transformation for sustainability⁴ and a key enabler for the successful transition to net zero economies.

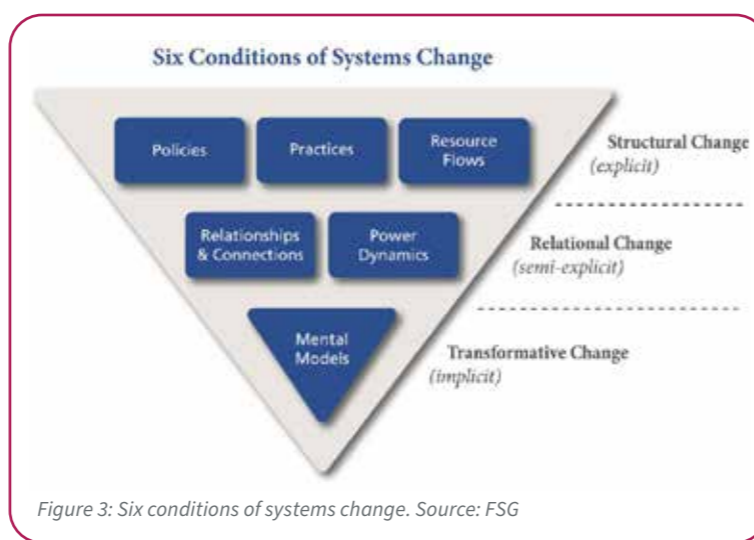


Figure 3: Six conditions of systems change. Source: FSG

2.3 CIRCULAR ECONOMY DRIVERS

Global drivers

According to the *OECD Survey on the Circular Economy in Cities and Regions*, the major global drivers for transitioning to a circular economy are environmental, institutional and socio-economic. Additionally, the circular transition is driven by job creation, private sector initiatives, new business models, technical developments and research and development.

While many countries have been promoting waste reduction and resource recycling in alignment with the *United Nations' Sustainable Development Goals (SDGs)* for decades,⁵ currently, the circular economy is often discussed in relation to progressing the transition to net zero emissions and sustainable societies in the post-COVID era.

Environment

Global climate and ecological emergencies are a key driver of the circular economy.⁶ There is increasing recognition globally of the need to move away from the existing cycle of unsustainable growth and accelerating consumption that is increasing natural resource use, waste production and dumping⁷ and contributing to environmental catastrophes such as ocean plastic pollution,⁸ deforestation,⁹ and soil contamination.¹⁰

Researchers also point to the relationship between a *take - make - dispose economy* and climate change.^{11,12} The traditional linear economy, where resources are extracted, used to create products and then discarded as waste, will invalidate global efforts to reduce greenhouse gas emissions unless there is a major paradigm shift.¹³ This is coupled with the issue of resource scarcity: with increasing population and consumption, there is a global risk to resource and energy security, which requires careful use of resources.¹⁴

Economy

Drivers for developing a circular economy also include opportunities such as creating new jobs and business value for participants by transforming 'waste to wealth'¹⁵ in the form of economic growth and stimulating local and regional attractiveness.¹⁶

In the context of Australia for example, the South Australian Government predicts that 25,700 new full-time equivalent jobs will be created by 2030 through circular practices.¹⁷ Improving energy and resource efficiency is also a way to decrease production costs and increase competitive advantage.¹⁸ For countries or regions with limited land and resources (e.g. Japan or Europe), implementing a circular economy can reduce dependence on the import of raw materials and goods.¹⁹ In regional Australia, where resources are rich and land plentiful, the circular economy could be a regional solution to the dominance or failure of global supply chains by anchoring economic production and supply chain value locally.^{20,21}

OVERVIEW

Circular economy drivers can be classified into the following categories:

- **Environment:** Climate change, pollution and environmental pressure caused by population growth, urbanisation and overconsumption.
- **Economy:** Business opportunities, job creation potential and efficiency and value-adding of materials and energy.
- **Policy and regulation:** International and domestic policy factors such as the net zero transition and restrictions on waste exporting and importing.
- **Sociocultural:** Consumers' environmental awareness and behaviour change, social innovation and grassroots activities.
- **Technological:** Recycling technology innovation, as well as digital platforms for a sharing economy.

Policy and regulation

International, national and state policy and regulatory frameworks also drive the circular economy. One notable example is the Chinese Government's refusal to accept Australian recycling due to high levels of contamination. This decision has forced exporting countries to rethink how they deal with recycled waste, either by reducing the amount of it or reusing it locally.²²

The waste management sector also faces pressure from domestic regulations such as waste levies exerted by government.²³ For example, it has been observed that a state-wide waste levy in Queensland implemented in July 2019 gave regional councils and communities a sense of urgency to recycle and reuse waste.²⁴

Social and cultural drivers

Circular economy consists not only of commercial activities but also a diverse set of grassroots activities practicing circularity based on reciprocity and redistribution.²⁵ In this case, circular practices are regenerative in an ecological and socio-cultural sense as communities and residents (re)generate agency in a precarious, postmodern world through alternative forms of social and property relations.²⁶ Simply put, the circular economy is regenerative of both natural and social capital²⁷ and contributes to regional identities and community resilience.

Overall, circular economy responds to 'the manifold of ecological, economic, and other social challenges', including food security, water shortages, biodiversity loss, ecosystem destruction, precarity of work, mental health problems, social inequalities and the limits of planetary and social boundaries²⁸ offering a cultural shift towards a more resourceful and less wasteful society.

2.4 CIRCULAR ECONOMY BARRIERS

OVERVIEW

Barriers to implementing a circular economy can be classified into the following categories:

- **Technology and infrastructure:** Technological and infrastructure limitations on the design, manufacture and processing of materials for circularity.
- **Economy:** Financial viability and profitability of circular initiatives including weak economic incentives for producers and low market acceptability for consumers.
- **Industry:** Capacity and capability issues including limited models of success, lack of leadership and design-led innovation capabilities, priority of other issues; and skills shortages.
- **Policy and Regulation:** Ineffective recycling policies, unclear vision and roadmap, mismatch between existing laws and circular economy concepts and lack of a standard system for performance assessment.
- **Socio-cultural:** Public perceptions of the circular economy and refurbished or reused products, low public engagement, lack of social license and lack of social inclusion.

While the concept of a circular economy is increasing in popularity, its design and implementation has encountered many challenges and barriers including technological, market-mediated, regulatory and socio-cultural. *The Global Circularity Gap Report 2024* found that while discussion and debate surrounding circularity have almost tripled in the last five years, this has not resulted in a decline in virgin material use.

Technology and infrastructure

Despite its ideation, a circular economy is rarely, in practice, a closed loop without material or energy exchange with other systems. The technological barriers to implementing a circular economy can be linked to concerns about economic viability. For consumers and enterprises to adopt circular practices, recycled products need to be cost-effective and high quality, relative to the availability and price of raw materials. The difficulties in the life cycle management of products and waste are a major barrier.²⁹ For example, there could be a lack of separate, at-source waste collection and cost-effective approaches to detect, sort and clean mixed waste.³⁰

In addition to the processing capability and cost, the cost of long-distance transportation is also an important factor in regional Australia. Take soft plastics recycling in Australia for example: only New South Wales, Victoria, and South Australia have or are building facilities for recycling soft plastics, while others need to transfer their waste to these three states if they want it to be recycled.³¹ The long transportation distance could decrease economic and environmental benefits associated with the recycling, given the price and greenhouse gas emissions of fossil fuels.³² This also suggests the importance of infrastructure, as well as proximity to areas with critical infrastructure, in influencing the potential of a circular economy. The incentive to implement a circular economy reduces when there is the need for a high investment, like infrastructure, in the short-term while benefits are only achieved in the long-term,³³ although it can act as an effective driver for local solutions.

Economic constraints

Another economic barrier is the lack of market and consumer demand. New recycled materials require new markets.³⁴ However, this depends on consumer acceptance of these products, which is both an economic and cultural issue.³⁵ Many people still have a strong preference for new products over refurbished products. Sometimes, there is also a lack of incentives for companies to design durable products and take-back mechanisms for recycling of products.³⁶ Moreover, the lack of cooperation and knowledge sharing in the value chain could also negatively affect the development of a circular economy.³⁷

Organisation and leadership barriers

In addition to external market conditions, internal organisation or management issues of economic operations plays an important role in the implementation of a circular economy. For example, researchers have found that poor leadership and management might limit commitment and support for sustainability initiatives.³⁸ Furthermore, a lack of a clear vision of what to expect and how to measure the outcomes could be a significant challenge for enterprises to adopt a circular economy business model even if they have strong interests and incentives.³⁹ This challenge is, in turn, caused by the lack of successful business models and frameworks⁴⁰ and of (design-led) innovation capabilities.⁴¹ When implementing a circular economy, businesses also face additional challenges, such as the lack of knowledge and skills by employees,⁴² of data and accurate information tracking the progress of the implementation,⁴³ the life cycle of products,⁴⁴ as well as policy or financing support.⁴⁵

Policy and regulation

It is well acknowledged that regulatory policies and fiscal incentives are necessary for increasing the potential of a circular economy.⁴⁶ However, in many countries there is a lack of comprehensive and coordinated policies on circular economy across jurisdictions.⁴⁷ Common regulatory barriers include an unclear national vision and roadmap; irregular standards for recycled material quality and measurement of circular economy performance; inefficient recycling and waste management policies; and data gaps on waste generation, material flows, circular practices and market volume.⁴⁸ Many of the barriers mentioned are experienced by businesses and industries which would require government assistance through policies and guidelines.



Social and cultural barriers

Circular economy development is also faced with social and cultural challenges. These challenges not only encompass public perceptions and knowledge about the circular economy but also include more fundamental challenges in relation to beliefs about the nature of growth, prosperity and development. One of the major questions proponents of the circular economy encounter is how the circular agenda ‘chimes’ with long-standing development agendas. While the circular economy could be incorporated into sustainable development agendas, this also produces new contradictions between existing profit-oriented, market-oriented solutions and ‘circular’ values based on reciprocity and sustainability.⁴⁹ How we address these challenges goes to the heart of our vision for our global future and the future of our regions.

While a strong emphasis has been placed on the environmental and economic implications, the social aspects of a circular economy such as inequality and poverty, community wellbeing and agency, as well as international justice are largely neglected.^{50,51,52} Across mainstream literature, limited research exists on whether a circular economy could create social values at a local or community level and beyond.⁵³ For example, researchers have noted that mainstream circular economy models often neglect less visible actors of waste management and the alternative practices of informal markets.⁵⁴

In addition, the circular economy could also fall into a technocratic structure, where technological advancement is considered a fix for everything and thus prevents citizen participation and even the involvement of corporate actors in the design and development phases.⁵⁵ This lack of public engagement could further ecological or environmental gentrification of communities or neighbourhoods⁵⁶ and potentially undermine the social license of local residents during the implementation of circular economy practices.

Thus, ‘there is a real danger that mainstream circular economy has disengaged from sustainable development and follows the same rules and outcomes as the linear economy it purports to replace.’⁵⁷ The absence of a social and ecological focus might only strengthen existing elite interests with little reflection on local inhabitants’ agency and little engagement with local associative networks. The grassroots practices which aim to generate creative agency for local communities and residents should also be recognised and provided with enough support to actively participate in circular economy agendas.

2.5 COLLABORATION

Collaboration is key to the implementation of the circular economy because all actors in the ecosystem interact to create systems change. To enact the required structural changes to policy, practice and resource flows, supporting *relational changes* are required through the formation of relationships and connections and reconfiguration of power dynamics.

Stakeholder roles in a circular economy

Table 1 outlines the roles of key stakeholder groups identified in the literature.

Table 1: Contributions of key stakeholders to advancing a circular economy

GOVERNMENTS

Develop policy and regulatory frameworks to drive resource management, design, product stewardship, recycling and reuse of products and regulate the services industry.⁵⁸

Provide information, education and resources to promote sustainability, facilitating a shift from single use to sustainable practices.⁵⁹

Offer training and support to small and medium enterprises, promoting circular economy principles, startup support and best practice communication.^{60,61}

Allocate funding for research into circular business models and waste management programs.

Facilitate circular economy policy implementation through law enforcement, consumer protection, education, health services and environmental protection.⁶²

Collaborate with key regional stakeholders including local governments, industry and community to innovate and develop projects and programs to address waste challenges and circular economy opportunities.

UNIVERSITIES AND RESEARCH INSTITUTIONS

Scientific research activities: research and application of circular economy technology by researchers and the transformation of green science and technology achievements from theory to practice through university-enterprise cooperation.⁶⁶

Concrete practical activities: provision of support in implementation and use of green technology during the transitional stages of the circular economy-model by guiding researchers towards green technology innovation.

Educational activities: education and dissemination of the circular economy concept to students and society, including the cultivation of circular economy professionals and graduates with circular economy values for society and the dissemination of the circular economy idea to the public.

BUSINESS AND INDUSTRY

Select renewable and low-impact resource suppliers within supply chains to establish circular logic and sustainability principles.⁶³

Foster engagement with suppliers to promote convergence between cultural models of supplier companies and those of firms implementing the circular economy initiative.

Provide services and products that meet the needs of consumers and manufacturers, allowing for the transformation, reuse or recycling of products coming to market.

Drive change in values, principles and company culture.

Orient corporate behaviours towards environmental protection and health safeguarding best practices.

Ensure leadership commitment as a key driver for adopting sustainability principles.⁶⁴

Enable internal stakeholders across departments to enhance sustainability commitment and influence positive initiative outcomes.

Support circular economy initiatives significantly with leadership and top management endorsement to ensure broader success and stakeholder information sharing.⁶⁵

CONSUMERS AND COMMUNITIES

Transform into suppliers of reusable resources in connection with the manufacturing of new products in the circular process.⁶⁷

Increase awareness of consumption practices to prompt responsible consumption behaviours and practicing waste reduction and material reuse.⁶⁸

Raise consumer awareness as a critical source for culture change in environmental and community health protection, leading to cost savings through recycling and material reuse processes.

Engage users in three phases: design, marketing and use.⁶⁹

Promote engagement in local circular economy activities, such as second-hand and sharing economy activities, to increase the lifespan of products.⁷⁰

Impacts of engagement

Stakeholder engagement is vital to the circular economy and can often influence its success or failure.

Supplier engagement improves the circularity of products, such as an increased supply of more sustainable raw materials or recycled materials. Engagement with suppliers early in the production phase and collection of raw or recycled materials can also contribute to an increase in the clean materials cycle, reducing the circulation of potentially toxic substances within products.⁷¹

Customer engagement increases the likelihood of responsible consumption, increases demand for recycling options or more sustainable disposal options and allows for consumers to become suppliers in the circular economy.

Government engagement with industry through research and training can improve circular economy business models through best practice research and implementation, as well as provide a conduit between customers and manufacturers. Hazardous materials still exist within some supply chains, such as mercury and asbestos, despite being banned in many countries. Government intervention by means of policy and regulation may be necessary to create a 'clean materials' cycle in the manufacture and use of hazardous materials and the import of potentially hazardous materials from countries without similar regulations.⁷²

Employee engagement can help create a culture of sustainability and company buy-in to circular economy initiatives. Successful implementation of circular economy initiatives is more likely with senior management buy-in than those without, resulting in better outcomes overall. Employees can also play an important role in education within the broader community through an increased understanding of the available products and services, which in turn can increase the customer buy-in.

Shareholder and investor engagement is often needed to secure funding for initiatives, particularly if this involves the implementation of new technology. Further scientific research into technology and processes is needed upstream in the manufacturing and governance structure for a circular economy initiative and downstream in infrastructure and processing technology. Contributions from shareholders and investors makes these developments possible but can also (for better or worse) influence the direction of the company or technology development.



Circular collaboration

Collaboration is essential to developing the circular economy. In this context, collaboration is defined as the act of communicating and working together for mutual benefit, where stakeholders build on each other's ideas to solve problems, create new solutions, or innovate existing practices.^{73,74}

The practice of collaboration in the circular economy is diverse, taking various forms based on the needs and objectives of the participants involved. However, the Victorian Government's Circular Economy Business Innovation Centre (CEBIC) has identified four different levels of collaboration, which vary in the degree of commitment and formality of commitment required (see Figure 4). Informal collaborations such as knowledge exchange and networking typically involve less risk, while formalised collaborations which take time and effort to develop, may yield stronger outcomes such as pooled resources and broader geographical impact.

CIRCULAR ECONOMY COLLABORATION TYPES

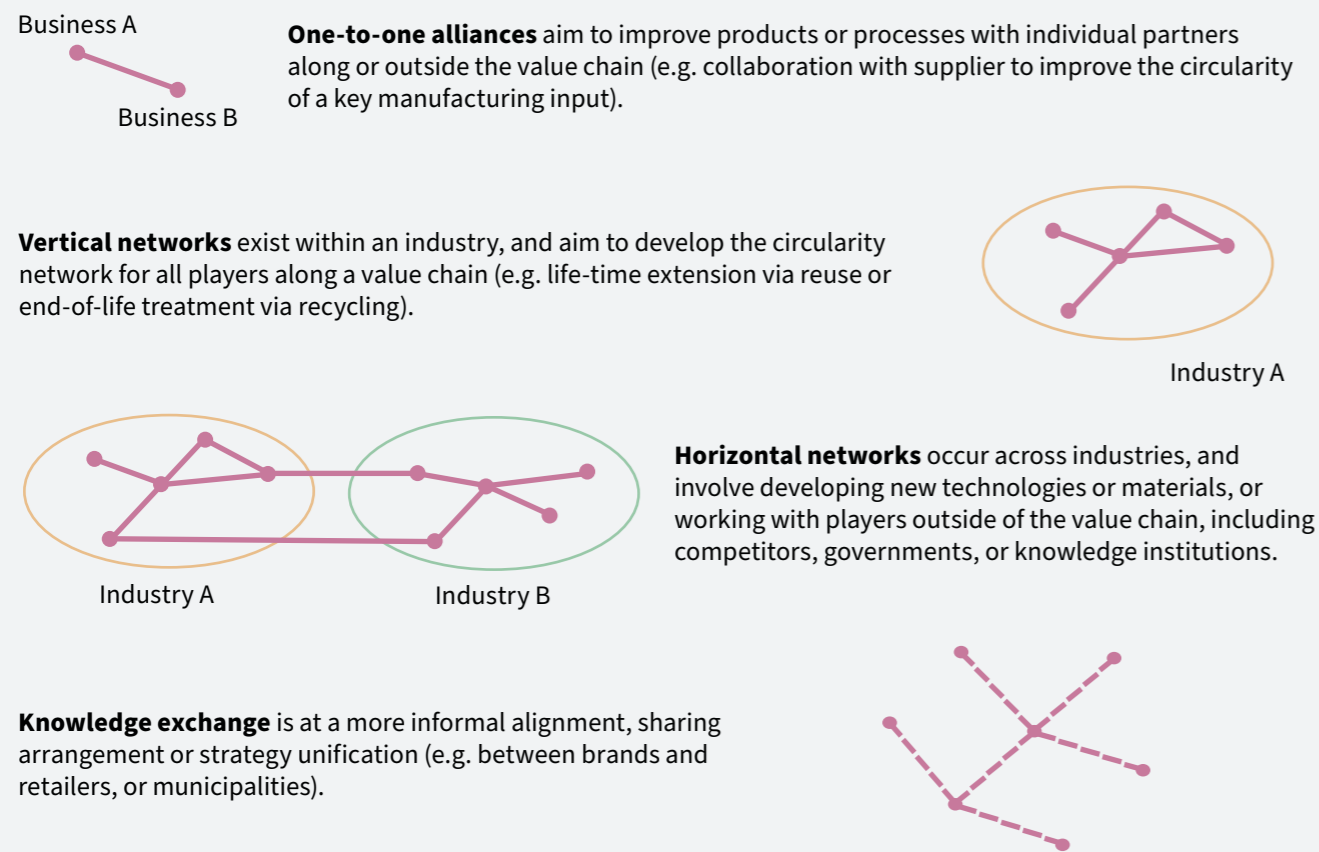


Figure 4: Circular economy collaboration types. Source: Victorian Government's Circular Economy Business Innovation Centre (CEBIC)⁷⁵

According to the literature, circular collaboration achieves several key outcomes, including joint learning, shared goals, resource sharing, finance alignment and joint product development, each contributing significantly to advancing circular economy principles.⁷⁶ The outcomes of collaboration lead to increased innovation development of supply chains and optimisation of resources.⁷⁷

2.6 CIRCULAR ECONOMY IN THE REGIONS

Research on the circular economy is plentiful in Australia and internationally, yet it predominantly focuses on urban settings. This focus often overlooks the unique contributions that rural and regional areas can make toward implementing the circular economy, despite their significant importance.

Regional areas are fundamental to human wellbeing, providing essential resources such as food, fresh water and other ecosystem services.⁷⁸ Currently, regional Australia is experiencing population growth and is now home to 9.78 million people.⁷⁹

Compared with metropolitan areas, regional and rural landscapes offer unique opportunities and face distinct challenges in their development towards circular economy:

Rural regions are often characterised by a lower population and development density, as well as a high proportion of natural assets and agricultural land. Common environmental problems in rural areas relate to biodiversity loss, the pollution of soil, water and air, and are often the result of poor or environmentally damaging management of natural resources, for example food production, waste disposal or industrial pollution. In addition, climate change will progressively increase water scarcity, exacerbate flooding and coastal erosion and increase the intensity and frequency of wildfires across the rural landscapes.⁸⁰

Key differences between regional and metropolitan areas include population size, geographical location, land use, natural resources and industries and economic scale.

Typically, regional areas have a lower population density than urban areas, which can impede the implementation of the circular economy due to limited consumer demand, challenges in achieving economies of scale, fewer resources and businesses for collaboration and difficulties in attracting investment.

Another major barrier for regions is geographical isolation and a lack of recycling infrastructure. Large distances to recycling facilities result in high transportation costs, increased carbon emissions and greater maintenance requirements for transportation infrastructure. Additionally, storage costs incurred before transport and limited space on-site can restrict collection options. Consumer engagement in recycling schemes, such as container exchange programs, is further hampered by the inconvenience of long transport distances. These challenges culminate in what is termed a 'tyranny of distance', a significant barrier to transitioning to a circular economy in remote areas.⁸¹

Despite these challenges, regional areas possess unique potential for developing a circular economy that are not present in metropolitan areas, especially those derived from the region's distinct industrial structures and resources. For instance, in the Limestone Coast and Murraylands region in South Australia, prominent industries such as agriculture, forestry and fishing significantly contribute to the economy. The by-products from these sectors are viable and profitable for recycling, encouraging local governments, businesses and communities to advance the implementation of the circular economy.⁸² In the Northern Territory, the prevalence of car bodies, due to geographical remoteness, harsh climate and poor road conditions, presents an opportunity for local councils to derive economic benefits by collecting these scrapped cars and processing them through metal enterprises for recycling. Additionally, in remote mining areas like the Pilbara in Western Australia, there is considerable potential for developing a sustainable and diversified economic model tailored specifically to the mining industry.⁸³

2.7 INTERNATIONAL EXAMPLES IN REGIONAL CIRCULAR ECONOMY

Given the relatively sparse literature on the circular economy in rural and regional contexts, the RAI has identified international exemplars of regional circular initiatives as a reference for Australian communities.

The European Union (EU) is a global leader in circular economy policy and implementation with key documents such as the *Framework Programme for Research and Innovation* and the *New Circular Economy Action Plan* guiding circular development. Within this context, new initiatives have arisen in rural and regional areas.

For example, in the forest sector of Finland and other EU countries, life cycle management and recycling/reuse of products are increasingly being seen as critical to the long-term international competitiveness of the industry.⁸⁴ Novel opportunities associated with the circular economy include the cascading of forestry, wood and paper products — a process in which a certain resource is used sequentially for different purposes — and the recycling of timber from construction.⁸⁵ There are three major areas of focus in the EU: preventing wood leaving the material flows; addressing the burning of virgin wood, residues, and waste wood; and promoting the continuing material use of wood.⁸⁶ Adopting the practices of cascading, many companies recognise the importance of environmental and economic sustainability in the future development of the industry. However, it has also been observed in Finland that the lack of inducements, legislative obligations and demand from the construction sector or other consumers limits cascading on a wider scale.⁸⁷

China offers another international example of the development of regional circular economy approaches through the implementation of household biogas digesters (HBDs) in rural areas. The utilisation of biogas generated from livestock manure and crop straw helps reduce greenhouse gas emissions and dependency on fossil fuels. Thus, it has been widely popularised in rural China with 39 million HBDs installed up to 2018, which produced more than 8 billion cubic metres of biogas each year. Despite these achievements, many HBDs have either been underutilised or even ceased operation before the end of their service life. It is estimated that only 19% of biogas reduction potential has been achieved in rural China.⁸⁸ This underutilisation is largely due to the policy focus on construction rather than operation and maintenance of HBDs. Specifically, the lack of technical training and subsidies impedes households' continuing use of HBDs. This is an important lesson not only for China but also for other countries: to promote the circular economy, it is necessary to support consumer behaviour change in the long run rather than focusing merely on short-term incentives.

03. POLICY CONTEXT

This chapter summarises circular economy policies and strategies across national, state and local levels.

3.1 NATIONAL POLICY LANDSCAPE

Governments at all levels in Australia have signed up to a *National Waste Policy* and *Action Plan* to increase waste recovery and recycling rates and shift material use to a circular economy.

The *Policy* outlines five key principles:

1. Avoid waste.
2. Improve resource recovery.
3. Increase use of recycled material and build demand and markets for recycled products.
4. Better manage material flows to benefit human health, the environment and the economy.
5. Improve information to support innovation, guide investment and enable informed consumer decisions.

The *Action Plan* distils these principles into seven targets with accompanying strategies and actions:

1. Ban the export of waste plastic, paper, glass and tyres, commencing in the second half of 2020.
2. Reduce total waste generated in Australia by 10% per person by 2030.
3. 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030.
4. Significantly increase the use of recycled content by governments and industry.
5. Phase out problematic and unnecessary plastics by 2025.
6. Halve the amount of organic waste sent to landfill by 2030.
7. Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.⁸⁹

Regional Australia has been significantly emphasised in the *National Waste Policy* and *Action Plan*. Strategy Six in the *National Policy states*: ‘Identify and improve regional, remote and Indigenous communities’ ability to access, influence and participate in a circular economy.’

Action 3.17 in the *Action Plan* specifies: ‘Increase access to resource recovery and waste management infrastructure for regional, remote, and Indigenous communities in every state and territory.’

In 2022 the *National Waste Action Plan Annexure*⁹⁰ was released as an update and action 3.17 relating to regional Australia was retained. This indicates a growing understanding of the need for localised infrastructure development in the regions to support circular economy implementation.⁹¹

Specific circular economy policy and planning is growing around the targets. For example, combatting food waste and loss is encapsulated in the *National Food Waste Strategy*⁹² and its associated action plan⁹³. Onshore management of plastics, glass, paper and tyres is covered in a *National Roadmap*,⁹⁴ within sustainable procurement policies to re-value recycled materials and an increased emphasis on product stewardship.

The Australian Government has also provided direct economic incentives for improvement of waste and recycling infrastructure across the country via the *National Partnership on Recycling Infrastructure*, and its *data viewer* shows to date, of the 119 reported projects, 45% are deemed rural/regional and received around 24% of available funding.⁹⁵

Table 2 provides an overview of the roles of different levels of government in Australia in the circular economy.

The Environment and Communications Committee report, *Waste and Recycling Industry in Australia*, identifies the roles of different levels of government in providing a coherent approach to waste management and recycling. Furthermore, the OECD’s *Circular Economy in Cities and Regions* report suggests the need for shared responsibilities and coordination among different levels of government and stakeholders in a circular economy. The second column of Table 2 lists these roles and responsibilities as recommended by the OECD.

Recent progress in circular economy: In 2022, all of *Australia’s environment ministers agreed* to work with business and industry to design out waste and pollution, keep materials in use and foster markets to achieve a circular economy by 2030.⁹⁶ In February 2023, the Australian Government established a *Circular Economy Ministerial Advisory Group* to provide advice to the Australian Government on the transition to a more circular economy;⁹⁹ and in 2024, the Australian Government launched its *Environmentally Sustainable Procurement Policy and Reporting Framework*. These initiatives reflect recent progress towards considering upstream and broader implications of a circular economy beyond waste and recycling.

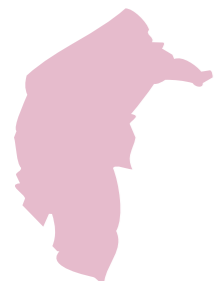
TABLE 2: ROLES OF DIFFERENT LEVELS OF GOVERNMENT IN WASTE MANAGEMENT AND GENERAL CIRCULAR ECONOMY

	WASTE MANAGEMENT⁹⁶	GENERAL CIRCULAR ECONOMY⁹⁷
COMMONWEALTH	<ol style="list-style-type: none"> 1. National leadership and coordination 2. Ensures Australia’s international obligations regarding waste are met 	<ol style="list-style-type: none"> 1. Developing and implementing national circular economy initiatives 2. Setting up national agencies and advisory bodies responsible for the circular economy 3. Developing national circularity strategies or roadmaps and consulting with state and local territories
STATES AND TERRITORIES	<ol style="list-style-type: none"> 1. Primary responsibility for regulating domestic waste management 2. Imposing licence conditions for waste and recycling facilities and the transportation of waste 3. Imposing landfill levies 4. Providing incentives for recycling 5. Undertaking environmental protection measures, such as enforcement activity in relation to large scale illegal dumping and dumping of hazardous waste 	<ol style="list-style-type: none"> 1. Creating technical working groups to kick off the development of circular initiatives 2. Developing circular economy frameworks in accordance with the national strategy 3. Helping build capacities and skills and providing financial support for circular initiatives 4. Pushing for data and information on circular economy
LOCAL GOVERNMENT	<ol style="list-style-type: none"> 1. Providing a range of services directly, including waste collection, waste disposal, kerbside recycling, management of landfills and gas capture and co-generation of power 2. Providing waste management services as part of a cooperative body with other local governments 3. Contracting waste management contractors to undertake waste services 4. Undertaking other programs to reduce the amount of waste going to landfill, such as the collection of green waste to produce compost 5. Supporting other initiatives, such as product stewardship, the introduction of container deposit schemes, and community education programs 6. Providing data on waste and recycling, and addressing small scale, non-hazardous illegal dumping 	<ol style="list-style-type: none"> 1. Developing regional circular economy plans and roadmaps 2. Cooperating with private companies, knowledge institutions and other organisations to develop and implement circular initiatives 3. Employing specific circular economy managers to promote the setting and implementation of circular strategies and to build relations with external actors 4. Creating interdisciplinary work groups to promote the coordination between council agencies concerned with circularity
ALL OF GOVERNMENT	<ol style="list-style-type: none"> 1. Involved in managing waste and recycling to protect the environment, secure public health and safety outcomes, and to avoid the loss of public amenity 	<ol style="list-style-type: none"> 1. Sharing responsibilities and coordinating the development and implementation of long-term strategies for a circular economy

3.2 STATES

The regulation and management of waste and resource recovery in Australia is primarily the responsibility of state and territory governments. All state and territory governments have laws and policies to protect the environment, conserve natural resources and regulate and manage waste. Guided by national waste and recycling targets and supporting action plans, some have reframed policy approaches to better conceptualise these changes.^{100,101}

Australian Capital Territory (ACT)



Building on its 2011 *Waste Management Strategy*,¹⁰² the ACT's *2023 Circular Economy Strategy and Action Plan*¹⁰³ recognises its city-state identity and is explicit about working across borders and regions via regional joint organisations to achieve waste management and circular economy goals. This drive for inter-state regional partnerships is demonstrated most clearly in a *Memorandum of Understanding with NSW*,^{104,105} where 'shared interests' help collaboration. For example, the ACT has a *Waste to Energy* policy which aims to minimise import of waste into the ACT (see Table 3), whereas NSW has the capacity and space to accept waste from the ACT and does so, providing disaster management responses such as recycling centre fires¹⁰⁶ to collaborative climate change mitigation strategies.

Table 3: ACT policy relating to a circular economy and regional perspectives

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>ACT Circular Economy Strategy and Action Plan</i> ¹⁰⁷	<ul style="list-style-type: none"> To take a regional approach to growing a collaborative and innovative circular economy, using waste processing to support a strong regional economy Enact a six-point strategy based on: <ul style="list-style-type: none"> - Designing out waste and pollution - Keeping products and materials in use at high value - Avoiding negative environmental impacts and regenerating natural systems
<i>ACT Waste-to-Energy Policy 2020-25</i> ¹⁰⁸	<ul style="list-style-type: none"> Minimise import of waste into the ACT for energy recovery Anaerobic digestion of waste is supported, as is production of Refuse Derived Fuel (non-thermal)
<i>ACT Waste Management Strategy: Towards a Sustainable Canberra 2011-2025</i> ¹⁰⁹	<ul style="list-style-type: none"> Implement waste avoidance strategies Full resource recovery A clean environment Carbon neutral waste sector

New South Wales (NSW)



In moving towards circular economy leadership, NSW is first tackling waste recovery and recycling rather than specifically 'designing out waste'.¹¹⁰ From a regional perspective, this approach highlights the need for infrastructure development on the one hand and economic support on the other. As such, the *2021 Waste and Sustainable Materials Strategy*¹¹¹ shows a more pragmatic addressing of circular economy priorities outlined in the 2019 *Circular Economy Policy Statement*¹¹² as outlined in Table 4.

Table 4: NSW policy relating to a circular economy and regional perspectives

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>NSW Circular Economy Policy Statement: Too Good to Waste</i> ¹¹³	<ul style="list-style-type: none"> Identify and improve the state and regional waste infrastructure network Establish seven circular economy principles Define NSW's role in circular economy implementation Create jobs in regions through supporting regional development
<i>NSW Waste and Sustainable Materials Strategy 2041 – Stage 1 2021-2027</i> ¹¹⁴	<ul style="list-style-type: none"> Recognise challenges in the regions regarding costs of delivering waste services Develop new regional organics transfer stations to increase capacity and process materials away from urban areas Support regional secondary processing facilities Develop at least three large-scale regional energy recovery facilities and one medium-scale 'dirty' recovery facility Reduce organic waste sent to landfill by 50% by 2030 Implement food organics/garden organics (FOGO) mandated kerbside collections in all NSW households by 2030 Identify opportunities for regional circular economy precincts

Northern Territory (NT)

The financial costs and the environmental and health risks related to waste management in regional and remote areas of the Northern Territory are significant. To address these risks and generate new economic opportunities, the Northern Territory Government is committed to transitioning to a circular economy through its *Circular Economy Strategy* (see Table 5). The strategy centres on updating the regulatory framework to protect the environment and support investment; and encouraging technological innovation, business creation and industry development.

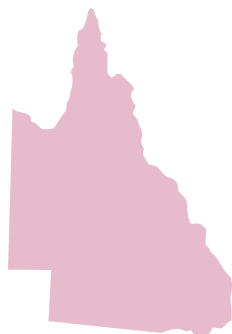
The Northern Territory is applying its *Recycling Modernisation Fund* towards waste processing. Round 1 funded seven waste recycling projects aimed at providing employment and diverting over 12,000 tonnes of glass, plastic, tyres, paper and cardboard annually. Four of these projects were in remote local government areas.



Table 5: Northern Territory policy relating to a circular economy and regional perspectives

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>Northern Territory Circular Economy Strategy 2022-2027</i> ¹¹⁵	<ul style="list-style-type: none"> Priority 1: Modernise the regulatory framework to grow the circular economy Priority 2: Transition the Territory to a circular economy Priority 3: Establish the waste industry as a contributor to the Territory's financial vision

Queensland (Qld)



The connection between waste reduction and a circular economy remains tightly correlated in Queensland's policies, especially around organics diversion from landfill, plastic pollution reduction¹¹⁶ and regional and Indigenous community inclusivity.¹¹⁷ Supporting the *Waste Management and Resource Recovery Strategy* outlined in Table 6, Queensland has produced a specific industry development program and an industries roadmap/action plan. The high visibility of the roadmap projects seeks to engage markets with circular economy opportunities and 'provide business and industry with the confidence to invest'.¹¹⁸ However, the strategy recognises the industry-related challenges faced by regional communities, especially regarding effective waste management and recycling (e.g. inadequate collection systems, the shortage of feedstocks/biomass, variable feedstocks, policy and regulatory barriers, lack of sorting facilities and immature end markets). Designing out waste and combating built in obsolescence is also referenced.

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>Queensland Waste Management and Resource Recovery Strategy (2021)</i> ¹¹⁹	<ul style="list-style-type: none"> 25% reduction in household waste by 2050 90% of waste is recovered and does not go to landfill by 2050 75% recycling rates across all waste types by 2050
<i>Queensland New-Industry Development Strategy</i> ¹²⁰	<ul style="list-style-type: none"> Priority – circular economy including resource recovery Waste reduction targets for 2050 – 50% renewable energy by 2030 and 80% by 2035

South Australia (SA)

As the first state to legislate greenhouse gas emission reduction targets,¹²¹ SA is often referred to as leading the way in waste management.¹²² Indeed, it has shifted circular economy to the forefront of its waste strategy and placed an emphasis on regional waste management plans with measurable and 'progressive waste diversion targets'.¹²³ In the *SA Waste Strategy*,¹²⁴ industry, business and the community sit alongside local governments, the Regional Development Authority, the Environmental Protection Authority and Green Industries SA as key collaborative partners for market and infrastructure development. In keeping with this collaborative approach, SA updated its climate change legislation to further support voluntary sector agreements as 'formal cooperative agreements between the SA Government and specific business entities, industries, community groups and regions to help tackle climate change'.¹²⁵



South Australia's Bioenergy Roadmap links biomass processing to energy supply in regions.¹²⁶ Green Industries SA estimates that a circular economy can reduce greenhouse gas emissions by more than 27% by 2030 through using food waste to generate energy.¹²⁷

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>Supporting the Circular Economy: South Australia's Waste Strategy 2020–2025</i> ¹²⁸	<ul style="list-style-type: none"> Reduce domestic waste by 75% in metropolitan areas by 2025 Require all regional local governments to have a Waste Management Plan with waste diversion targets in place by 2023
<i>Creating Value: The Potential Benefits of a Circular Economy in South Australia</i> ¹²⁹	<ul style="list-style-type: none"> Results of modelling demonstrated the potential value of implementing both energy and material focused policy measures in South Australia Evidence showed that sustainability scenarios create jobs, reduce greenhouse gas emissions and reduce energy use
<i>Climate Change and Greenhouse Emissions Reduction Act 2007</i> ¹³⁰	<ul style="list-style-type: none"> Reviewed Act emphasises partnerships and sector agreements to develop cleaner technology

Tasmania (Tas)



As the first legislated waste strategy for Tasmania, the *Waste and Resource Recovery Strategy 2023-2026*¹³¹ creates a framework around the four pillars shown in Table 8. It situates a circular economy front and centre in its value statement, both as a tool for economic development and a means of ameliorating climate change with objectives to reduce waste production and increase reuse/recovery running alongside stronger education and engagement, and government clarity on purpose and pathways.

Tasmania is planning to introduce a Container Refund Scheme in 2024. Interestingly, Tasmania's lack of processing capacity has provided stronger policy incentives to design out waste, with '100% reusable, recyclable or compostable packing' and '50% recycled content in packaging'¹³⁴ required by 2024. Driven by the state's waste diversion targets, some of Tasmania's councils are also investigating or implementing organics diversion from landfill via FOGO.

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>Tasmanian Waste and Resource Recovery Strategy 2023-2026</i> ¹³²	<ul style="list-style-type: none"> Establish four pillars of: <ul style="list-style-type: none"> Integrated planning and action Strategic investment Prioritise circularity Engagement and partnerships Reduce organic waste to landfill: 25% by 2025 and 50% by 2030, includes: Resource Recovery Market Strategy - determining pathways for resource recovery sector development 2024-26 and dependent on establishing effective and reliable data collection metrics
<i>Recycling and Resource Recovery Grant Programs - 2023-24</i> ¹³³	<ul style="list-style-type: none"> Develop and deliver grant program to support evaluation of resources through reuse, repair, recycling, reprocessing, and re-manufacturing

Western Australia (WA)

The WA Circular Economy Hub recognises two primary policies driving a circular economy in WA: the *Plan for Plastics* (which targets reduction over recycling) and the *Waste Avoidance and Resource Recovery Strategy 2030* (see Table 9). WA has also required FOGO implementation of its urban councils and encouraged organics diversion in the regions, with varying levels of success to date.



Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<i>Waste Avoidance and Resource Recovery Strategy 2030</i> ¹³⁵	<ul style="list-style-type: none"> Identify local, fit-for purpose solutions that reflect better practice, align with this strategy, and support a move towards becoming a circular economy Increase resource recovery by 60% in regional centres by 2030 Reduce per capita waste generation by 10% by 2025 and 20% by 2030 Provide grants to support regional development All waste diverted to circular economy/better practice facilities by 2030
<i>Western Australia's Plan for Plastics</i> ¹³⁶	<ul style="list-style-type: none"> Reduction of single use plastics creating opportunities for alternative packaging materials
<i>Closing the Loop: Waste Reforms for a Circular Economy</i> ¹³⁷	<ul style="list-style-type: none"> Recognises lack of data, and requires improved waste and recycling data collection from regions, especially from landfills and waste transporters (includes non-levy paying small regional waste facilities and regionally based industry and construction projects)

Victoria (Vic)

In common with most of the other states/territories, Victoria targets circularity from a waste reduction, reuse, and recycling perspective to reduce environmental impacts and strengthen the economy. As Table 10 demonstrates, a circular economy is used as a rationale for improved waste reduction and increased infrastructure funding.



Table 10: Victoria's policy relating to a circular economy and regional perspectives

Waste and Circular Economy Strategies	Waste and Circular Economy Regional Targets
<u>Recycling Victoria: A New Economy</u> ¹³⁸	<ul style="list-style-type: none"> 50% reduction in landfilling of organic material by 2030, with an interim target of 20% reduction by 2030 100% of households have access to a separate food and organics recovery service or local composting by 2030
<u>Circular Economy (Waste Reduction and Recycling) Act 2021</u> ¹³⁹	<ul style="list-style-type: none"> Emphasise delivery of state-wide stewardship, planning, regulatory and market oversight functions Will have a strong regional focus Support regional growth and community connectivity Deliver regional jobs through supporting innovation and productivity
<u>Victorian Recycling Infrastructure Plan</u> ¹⁴⁰	<ul style="list-style-type: none"> Unifies regional plans and previous infrastructure plans Prioritises local and regional decision making around waste, recycling and resource recovery strategies
<u>Regional Circular Economy Plans</u>	<ul style="list-style-type: none"> Regional Circular Economy Plans set out five regions' aspirations for a sustainable and thriving circular economy to 2030, which identify local investment priorities to help achieve the community's aspirations

A range of policies and initiatives directed at specific waste streams have gained regional traction across multiple states and territories, some of which are shown in Table 11.

Table 11: Examples of circular economy policy directed schemes that have gained traction around the country

Name of Scheme	Description	Challenges
<u>Food organics/ garden organics (FOGO) kerbside collections</u>	<ul style="list-style-type: none"> Landfilling of organics is known to have significant negative environmental, social and economic impacts Some states/ territories have responded to national strategies with reduction and diversion targets, incentivising FOGO implementation 	A lack of national cohesion with regards to collection, processing and treatment is currently delaying progress in this area.
<u>The Container Deposit Scheme (CDS)</u>	<ul style="list-style-type: none"> Under the extended producer responsibility and driven by the Australian Beverages Council Ltd. CDS schemes have been rolled out across Australia These schemes provide employment and exemplify circular economy to the community, accepting glass, aluminium, paperboard, and specific plastic (PET) drink containers 	Recycled PET (rPET) currently costs more than virgin PET, making it uneconomic for smaller drink companies to use.
<u>National Television and Computer Recycling Scheme</u>	<ul style="list-style-type: none"> <u>Recycling and Waste Reduction Product Stewardship – Televisions and Computers</u> (Rules 2021, 2022) 	E-waste is hard to recycle due to the complexity of the items.
Government and local government funded programs	<ul style="list-style-type: none"> <u>Love Food Hate Waste and Bin Trim</u> (NSW EPA, 2022) 	Dependent on council capacity to implement and community uptake.

3.3 SUMMARY

Australia's circular economy policies are primarily focused on waste management, emphasising recycling, waste reduction and resource recovery. This approach is evident across national, state and local levels, which predominantly aim to address the immediate environmental concerns associated with waste accumulation. The *National Waste Policy* and *Action Plan*, along with similar state strategies, illustrate this focus, setting targets mainly around waste diversion, landfill reduction and recycling rates.

However, the scope of a truly transformative circular economy extends beyond waste management to include broader aspects such as sustainable industrial practices, product lifecycle extension and systemic economic changes. Despite the existing emphasis on managing waste outputs, there is a significant opportunity for Australian policies to more comprehensively address upstream processes such as design innovation, materials substitution and overall reduction in resource use.

Current strategies could be enhanced by integrating broader circular principles that promote the redesign of products and systems to minimise waste from the outset, encourage the use of renewable over finite resources and regenerate natural systems. Additionally, fostering collaboration across various sectors and enhancing stakeholder engagement could drive a more holistic adoption of circular practices. This shift would not only help mitigate waste but also support sustainable economic growth and resilience in the face of global environmental challenges.

To capitalise on the benefits of a circular economy, Australia's policy framework needs to broaden its perspective to encourage a systemic change that encompasses economic, environmental and social dimensions, moving beyond the current focus that predominantly targets waste management.

04. REGIONAL CASE STUDIES

The RAI has developed six case studies to explore the implementation of circular economy initiatives across six regional Australian communities. The case studies include:

- Regions that are pioneers in implementing circular economy initiatives.
- A mix of coastal and inland regions of different sizes across states and territories.

The case studies include in-depth explorations of Bega Valley (NSW) and Mount Gambier (SA) based on field visits and face-to-face interviews with a wide range of stakeholders. These are accompanied by desktop analyses of circular economies in Albury (NSW), Launceston (Tas), Rockhampton (Qld), and the Central Desert (NT) Local Government Areas.

The case studies aim to address three key questions:

- What factors drive circular initiatives in the target regions?
- What barriers hinder the development of a circular economy?
- Who are the key stakeholders and how do their collaborative efforts contribute to the circular economy?



The Bega Valley has embarked on an ambitious circular economy transformation to address climate change and build sustainability across the agriculture, aquaculture and tourism sectors, as well as to protect and restore the natural environment and build community wellbeing.

Overview

The Bega Valley Shire is a unique area in regional NSW, with a population of 35,942 and covering over 627,850 hectares. In the face of recent challenges such as the intense Black Summer bushfires and the impact of the COVID-19 pandemic on local tourism, the region has embarked on an ambitious circular economy transformation to become a regional leader in circular innovation.

The circular economy initiatives in the Bega Valley are primarily led by the [Regional Circularity Co-operative](#) supported by funding from the [Bega Group](#), an Australian dairy corporation headquartered in Bega Valley. The Regional Circularity Cooperative has launched a collaborative circular program known as [Bega Circular Valley \(BCV\)](#). This 10-year program aims to identify, accelerate and implement enabling projects to enhance the delivery of circularity and stimulate a regional circular marketplace and a vibrant economy.

The Regional Circularity Cooperative has collated various initiatives from community, enterprise and local, state and federal governments into a cohesive, multi-year regional development program. Its goal is to create a more liveable Bega Valley Shire and establish a benchmark for other agricultural communities. With a vision of making Bega Valley Shire the most circular regional economy by 2030, the plan envisions the Bega Valley as a beacon model for regional Australia, demonstrating how economic, environmental and social resilience can flourish.

The Regional Circularity Cooperative has initiated an array of circular initiatives across fisheries and aquaculture, biodiversity connectivity, drought resilience and farm carbon.

The Circularity Cooperative's flagship initiative is the [National Circularity Centre](#), slated to open in early 2026. Located to the north of Bega, the centre will serve as a discovery centre and tourist attraction. It aims to represent BCV by featuring local products, programs, technology innovations and community history, thus connecting the past to the future. The centre will incorporate a visitor centre, a local providore, an ag-tech and business innovation hub and First Nations cultural information, serving as the epicentre of the circular economy concept. It will potentially offer research and development and training opportunities.

Choosing the Bega Valley as a case study was motivated by its pioneering role in adopting circular economy principles. The BCV initiative is a testament to a successful transition towards sustainability, making the Bega Valley an exemplary model for exploring circular practices in a regional setting and offering valuable lessons for other Australian communities.

Drivers of circular economy



The National Circularity Centre, Bega, NSW: Epitomising the drive and leadership being shown by Bega’s Regional Circularity Co-operative, this centre will be a first of its kind in Australia. It will showcase circularity across a wide range of demographics from schools to visiting tourists, as well as keeping the local community engaged and up to date with the region’s progress.

Figure 5: The planned National Circularity Centre, Bega

The Bega Valley’s transition towards a circular economy is underpinned by vital resources including technology, labour, land, financial backing and a market eager to close the loop. The realisation of these efforts heavily relies on leadership, community engagement and collaboration among stakeholders, highlighting the need for a united effort.

Leadership as a key driver

The Bega Group plays a pivotal role in spearheading circular economy initiatives across the Bega Valley. As an interviewee stated:



“...without that leadership, I don’t think this would happen...we have that large organisation with its resources based in our town and such a strong leader, who had a lot of contacts within various sectors and banks.”

The spark for these pioneering efforts was ignited by Rabobank, a Dutch bank renowned for its commitment to sustainable banking, governed by European legislation. By initiating dialogue with Bega Group and offering funding for circular initiatives, Rabobank achieved its sustainable loan principles in the Bega Valley, which aligns with the Bega Valley and the Bega Group’s long-standing commitment to sustainability, both on farm and in the factory.

The Bega Group also sought to demonstrate how the Bega community could transition to a circular economy. An interviewee reflected on this ambition:



“We had already done a lot of work in sustainability, and we’re probably considered reasonable leaders when it comes to on farm sustainability for dairy farmers... The Bega Group wanted to make a bigger difference... for the whole community and economy.”

The partnership between the Bega Group and Rabobank highlights how individual champions and collaboration can drive regional progress towards circularity and sustainability.



Bega Valley Shire Landfill: From a lonely landfill to a circular hub - Bega Valley Shire Council has great plans for moving beyond methane capture into a whole-of-centre recycling and remanufacturing centre at its landfill. Plans include an education facility as well as recycling and composting beside the current site.

Figure 6: Bega Valley Shire Council landfill

Collaboration

Anchored in the local community and supported by the local council and the NSW Government, the foundation members of the *BCV2030* initiative includes large businesses, corporations, financial institutions, universities and research organisations. They contribute significant knowledge, resources, and networking opportunities, greatly enhancing the acceleration of circularity projects within the region. Table 12 details the foundation members of the BCV 2030 program.

Table 12: The foundation members of the BCV 2030 program¹⁴¹

Stakeholder	Role
Bega Beef Coop	The Bega Beef Coop and farmers networks are volunteer based organisations that provide linkage to the non-dairy agricultural farmers within the Bega Valley.
Far South Coast Dairy Development Group	This group provides direct linkage to dairy farmers within the region and provides farmers with access to information, training and support.
AACo (Australian Agriculture Company)	AACo is the largest agricultural landholder in Australia and is heavily committed to methane reduction. It is engaged in the BCV program to collaborate around livestock emissions and circularity opportunities.
NBN Co.	NBN Co. is a foundational member of the Regional Circularity Cooperative and is focused on the role of data and instrumentation of the landscape to improve resource use.
University of Wollongong	The University of Wollongong founded the Bega Valley Innovation Hub and will provide start-up support and education, SMART infrastructure innovation and global research expertise.
Bega Valley Shire Council	The council will support projects aligning with its priorities, contribute to the development of the accelerator program, support the creation of the natural capital investment fund and support pilot programs.
Charles Sturt University (CSU)	CSU will participate in projects provide research insights, support the accelerator program, promote the program, and collaborate on the waste to energy, alternative animal feed development, soil carbon and use of marine by-products and socio-economic modelling.
KPMG	KPMG provides pro bono professional support to the development of the Bega Circular Valley program and projects, drawing on its global knowledge, insights and expertise in circularity, digital and natural capital.
Addisons	Addisons has provided pro bono legal services in relation to the establishment of the Regional Circularity Co-operative and other aspects of the Bega Circular Valley Program. Addisons will continue to support the Cooperative as it implements its vision to encourage environmental sustainability, economic resilience and biodiversity through the adoption of circular economic principles.

The Regional Circularity Cooperative and Bega Group have been central to coordinating this collaborative effort. The Bega Group has leveraged its community standing and extensive network effectively, facilitating key connections and fostering partnerships spanning academic, corporate and governmental spheres.

Through regular workshops, participants engage in detailed discussion to coordinate efforts, exchange ideas and outline specific responsibilities and investment allocations. For example, universities contribute knowledge, expertise and technology, serving as catalysts for innovation and supporting the growth of small, innovative enterprises. Consulting firms such as KPMG offer standardised advisory services, enhancing the program’s professional guidance. Crucially, government support plays a key role. The Regional Circularity Cooperative has a close relationship with local and state governments, which have joined as steering committee members to

provide policy and legislative advice. The NSW Government has also invested \$14 million in the National Circularity Centre. Engagement with the Australian Government is also evolving, with initiatives like outreach to the Circular Economy Ministerial Advisory Group for federal backing.

As the project evolves, foundation members continue to grow. Collaboration is a hallmark of the Bega Valley’s approach to circularity. Despite potential competition between members, their shared commitment to sustainable development fosters an open-minded approach.

Collaboration extends outside shire boundaries through involvement in the Canberra Region Joint Organisation’s Regional Waste and Resource Recovery Program.

Community at the core

Beyond the top-level collaboration led by the Bega Group, the circular economy in the Bega Valley benefits from widespread community engagement at the grassroots level. An interviewee highlighted the critical role of community involvement, noting this engagement not only fosters a sense of ownership and responsibility towards sustainable practices but accelerates the adoption of circular economy principles by embedding them in daily life. They emphasised that the company is deeply integrated with and forms a crucial part of the community.

“Bega Group has a long-standing presence in the community, and the community is very cohesive behind Bega Group. Bega Group employs 800 or so people in the region. So, there’s already good engagement through the workforce, also the fact that those of us working on this circular economy initiative are part of the community. But there’s no doubt we need to do more on that community engagement.”

As repeatedly mentioned by our interviewees, Bega Valley boasts a unified and close-knit community culture, with a high level of consensus on sustainable development and environmental protection. Natural disasters, such as the Black Summer Bushfires, coupled with the Bega Valley’s relatively isolated geographical location, have galvanised the community around the idea of fostering a circular economy. Indeed, this strong sense of community cohesion lays the groundwork for the top-down initiatives promoting the circular economy in the Bega Valley.



Oyster shell recycling in Bega: From oyster shell and fish guts to high quality soil conditioner. Ocean to Earth is breaking new ground as the first to be granted an exemption in Australia to reprocess marine waste into a soil conditioner that meets the Environment Protection Authority’s rigorous standards. Strongly supported by the local aquaculture industry, the local community has also come on board, depositing their own fish waste in bins supplied.

Figure 7: Ocean 2 Earth product



Boomerang Bags in Bega: With the enthusiasm of a community behind them, Boomerang Bags has found its place in Bega. With the goal of getting rid of single use plastic bags, volunteers sew up bags using donated materials and distribute them around the town. They are delighted to see them being used in place of the plastic bags.

Figure 8: Boomerang Bags workshop attendees displaying labels that get sewn into the bags

Policy and regulation

In NSW, some proactive regions are actively incorporating state strategy into their circular-focused practices. The Bega Valley is an example of a progressive region with a strong circular economy drive that aims to include ‘public sector best practice policy frameworks’¹⁴² within its approach. At a local government level, circular economy is framed within Bega Valley Shire Council’s *Climate Resilience Strategy 2050*¹⁴³ but this acknowledges that ‘many strategies to increase our community’s resilience across a range of sectors sit outside of the statutory responsibility or influence of local government.’

Council’s Waste Strategy notes the need for policy clarity and investment to achieve the potential resilience embedded in circular economy.¹⁴⁴ With a collaborative goal of becoming a centre of circular economy excellence, the Bega Circular Valley 2030 program supports, draws together and promotes a range of circular economy projects across the shire through the Regional Circularity Cooperative.

KEY LEARNINGS

The journey of the Bega Valley towards establishing a circular economy offers invaluable lessons and insights for regions aiming to embrace sustainability and resilience. Here are the key takeaways and experiences from the Bega Valley’s pioneering efforts:



Leadership and vision: The crucial role of leadership, as demonstrated by the Bega Group, underscores the importance of having visionary leaders who are committed to sustainability. Leaders with a strong network and the ability to champion circular economy initiatives are essential for catalysing change and garnering support from various sectors.



Setting a visionary goal: The ambition to make Bega Valley Shire the most circular regional economy by 2030 serves as a motivational benchmark. Setting clear, ambitious goals can inspire action and measure progress towards sustainability.



Collaborative partnerships: The formation of the BCV 2030 initiative highlights the power of multi-party collaboration. Successful circular economy projects require the involvement of diverse stakeholders, including businesses, government entities, financial institutions and educational organisations. These partnerships contribute knowledge, resources and networks, accelerating the implementation of circularity projects.



Community engagement: Deep community integration and engagement are fundamental. The Bega Valley’s experience shows that community support and involvement at the grassroots level can significantly advance the adoption of circular economy principles. Engaging the community through workshops and activities fosters a sense of ownership and responsibility towards sustainability.



Utilisation of local resources: Leveraging local assets, such as the Bega Valley’s agricultural and environmental resources, to promote circular practices is crucial. The focus on local strengths and characteristics can drive the development of tailored circular economy solutions that resonate with the community’s needs and potential.



Government support: The involvement of local, state and federal governments is key to creating a conducive environment for the circular economy. Government investment, policy advice and legislative support can provide the necessary framework for circular initiatives to flourish.



4.2 LIMESTONE COAST

South Australia's Limestone Coast region is supported by industries such as forestry, agriculture and fishing, with an emerging focus on manufacturing, tourism and retail trade. This landscape provides fertile ground for the integration of circular economy practices yielding significant environmental and economic benefits.

Overview

The Limestone Coast region, positioned in the far southeast of South Australia, offers a unique amalgamation of natural beauty, economic diversity and a strong commitment to sustainability and circular economy principles.

The region has a population of 69,137 and its industrial landscape is particularly suited to the integration of circular economy practices within sectors like forestry and agriculture, where sustainable management practices can lead to significant environmental and economic benefits.

This case study was conducted across the Local Government Areas of Mount Gambier, Grant, Kingston, Robe, Tatiara, Naracoorte Lucindale and Wattle Range. The selection of the Limestone Coast as a case study was driven by its unique blend of geographical, demographic and industrial attributes, coupled with an existing foundation of sustainability initiatives.

Drivers

In the Limestone Coast region, the push towards a circular economy emerges not from individual champions but through a collective, industry-driven movement, particularly rooted in agriculture, forestry and fishing. This distinction stems from the area's historical engagement with industries that inherently support circular economic practices.

The concept of a circular economy, while seemingly modern, is deeply engrained in the Limestone Coast's industrial fabric. The region boasts a legacy of recycling and sustainable practices, as illustrated by a local mill that has been converting waste products into electricity for over 70 years. One interviewee noted:

“It's not a new thing...They wouldn't have ever called it that [circularity]...but the concept has been in play for a very long time.”



Mount Gambier Reuse Shop: Council-run and volunteer staffed, the Reuse Shop knows how to put a value on the materials it receives. Everything is thoroughly cleaned and checked before it gets to the shop. The site also only opens twice a month, with locals queuing to get in. This combination of restricted opening hours, well-presented and well-prepared materials and strong local volunteer involvement yields positive results.

Figure 9: Mount Gambier reuse shop

Collaboration

In the Limestone Coast region, pioneering initiatives among industry sectors demonstrate the power of circular economy collaboration, transcending traditional business practices to embrace sustainability and innovation.

A prime example of such collaboration involves *Holla-Fresh*, a family-owned herb supplier in Tantanoola, *Bio Gro*, a provider of garden and landscaping products in Mount Gambier and *Rainbow Bee Eater*, a Melbourne-based technology firm.

The journey towards circularity began with Holla-Fresh's ambition to reduce its carbon footprint and operational costs, prompting the exploration of renewable energy sources. Bio Gro became a vital partner in this endeavour, freely supplying the essential biomass residue material needed for Holla-Fresh's new energy requirements. In return, Bio Gro utilises the biochar produced through the pyrolysis process. As a high-carbon charcoal, the biochar serves as an ideal, long-lasting soil additive and water retention medium, with potential applications in animal feed supplements, concrete strengthening, water filtration and road surfacing.

Rainbow Bee Eater's ECHO2 technology, which converts organic residues into renewable energy, provided the technological foundation for this sustainable cycle. This solution not only addressed waste disposal challenges but also supplied Holla-Fresh with a sustainable and cost-effective energy source. As a result, Holla-Fresh significantly reduced its energy costs and emissions, achieving a carbon-negative status.

As Figure 10 shows, this process has created a sustainable loop, where waste from one process serves as the input for another, illustrating the essence of a circular economy.

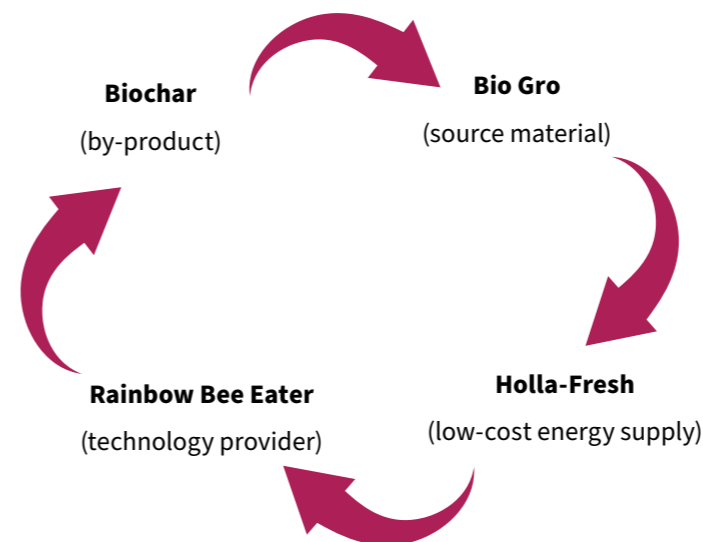


Figure 10: Collaboration progress between Bio Gro, Holla-Fresh and Rainbow Bee Eater



Transmutation, Robe: Rooted in a cradle to grave policy and driven by inspirational and innovative leadership, this business has risen to the challenges of producing quality reusable resins from recycled plastics.

Figure 11: Transmutation, Robe, plastic resin pellets

Green Industries SA (GISA), a state government agency, has been crucial in the development of this initiative. As a facilitator and advocate for sustainable practices within the region, GISA played a key role in bridging the gap between Holla-Fresh and its partners. By coordinating the national expression of interest process, GISA not only identified the most suitable technologies and partners for Holla-Fresh's goals but also provided the necessary support and resources to ensure the feasibility and implementation of the project.

This collaboration serves as an outstanding example of the circular economy in action. It has spurred innovation, created opportunities for three companies, boosted the regional economy, inspired new research and laid the groundwork for significantly reducing carbon footprints and achieving tangible business results. Furthermore, it highlights the importance of public-private collaboration in achieving sustainable circularity.

Another example is Beachport Liquid Minerals, a family-owned company that manufactures and distributes liquid supplements for animals. It has established a partnership with the University of Adelaide to validate the efficacy of seagrass-based supplements for livestock. This collaboration focuses on conducting scientifically rigorous trials and studies, ensuring that the company's products deliver measurable and significant benefits in animal health and productivity. This partnership could further solidify the company's position as a leader in innovative, research-backed animal health solutions.

Geographical edge for cross-border synergy

The geographical positioning of the Limestone Coast region presents unique opportunities for cross-border collaboration in the circular economy. This strategic location, near the Victorian border, not only facilitates the movement of goods but also serves as a conduit for innovative recycling and waste management practices that transcend state boundaries. Cross-regional initiatives are bolstered with collaborative efforts extending to waste management and recycling facilities in Warrnambool and a new plastics recycling facility in Hamilton. These collaborative efforts can also spur the development of new industries and opportunities within the region, contributing to economic diversification and resilience. As a waste management officer in the city of Mount Gambier highlighted:

“We sit halfway between Melbourne and Adelaide, and this is an advantage that amplifies the region’s potential as a hub for circular economic activities.”

Despite the advantages, such as the sharing of resources and expertise across state lines, the region faces legislative and policy hurdles that could impede the seamless implementation of circular economy practices. Challenges often arise from differing environmental legislation, waste management protocols and biosecurity requirements between South Australia and Victoria. These discrepancies can complicate the transport and recycling of waste materials across borders.

To address these challenges and harness the full potential of cross-border collaboration, the appointment of a Victorian/South Australian *Cross Border Commissioner* has been a significant step forward. This role facilitates discussions and negotiations between the states, aiming to harmonise regulations and create a more conducive environment for circular economy activities. The Commissioner plays a crucial role in overcoming obstacles that arise from the region’s geographical advantage. As one interviewee noted:

“This role is critical in breaking down those legislative and political boundaries, enabling more streamlined and effective waste management strategies that leverage the region’s strategic location.”

The Limestone Coast’s circular economy is significantly influenced by government actions and geographic advantages, facilitating the implementation of sustainable practices and enabling the region to serve as a model for cross-border collaboration in circular economy.



Beachport Liquid Minerals livestock supplements, Mount Gambier: Born out of the need to improve the welfare and health of cattle, this supplement has been researched to turn the naturally occurring acres of sea grass deposited on the Limestone Coast’s beaches into feed. With a unique drip feeding into troughs system, this exemplifies the opportunities and benefits of a circular economy product.

Figure 12: Stock drinking from a trough containing Beachport Liquid Minerals

Policy and regulation

GISA and Regional Development Australia (RDA) Limestone Coast have developed a report on circular economy opportunities in the region. By examining the existing policies, priorities and people living and working in this specific region, the report has identified areas of strength and potential that offer the greatest and the fastest pathways for sustainable development in the Limestone Coast region. Sectors with potential to develop the area’s circularity are agriculture, forestry, manufacturing, utilities, transport and construction, as well as households.

The Limestone Coast Local Government Association (LCLGA) has also initiated two strategy documents on waste management, *Limestone Coast Regional Waste Management Strategic Direction 2018-2023*¹⁴⁵, and *Limestone Coast Region Waste and Resource Recovery Infrastructure Plan*¹⁴⁶. A regional focus on waste management is needed due to escalating costs of waste management and subsequent economic pressures faced by councils; increasing enforcement of environmental standards for landfill operations and associated costs; and the opportunity to more effectively address and undertake activities where necessary across councils, such as education and optimising economies of scale.

Moreover, in collaboration with the University of South Australia and BDO EconSearch, the LCLGA developed a business model to test the feasibility of establishing a *Material Recovery Facility* in the Limestone Coast region. The engagement included a high-level assessment to determine whether the costs of recovering, processing and reusing recyclable materials is achievable within a regional context.¹⁴⁷

KEY LEARNINGS

Here are the key takeaways and experiences from the Limestone Coast’s pioneering efforts:



Utilise regional strengths: The Limestone Coast’s success illustrates the importance of aligning circular economy initiatives with local industries such as forestry, agriculture and fishing, which inherently support sustainable practices.



Promote industry leadership: The collective, sector-based approach across the Limestone Coast demonstrates that industry commitment can drive significant advancements in sustainability, bypassing the need for individual champions.



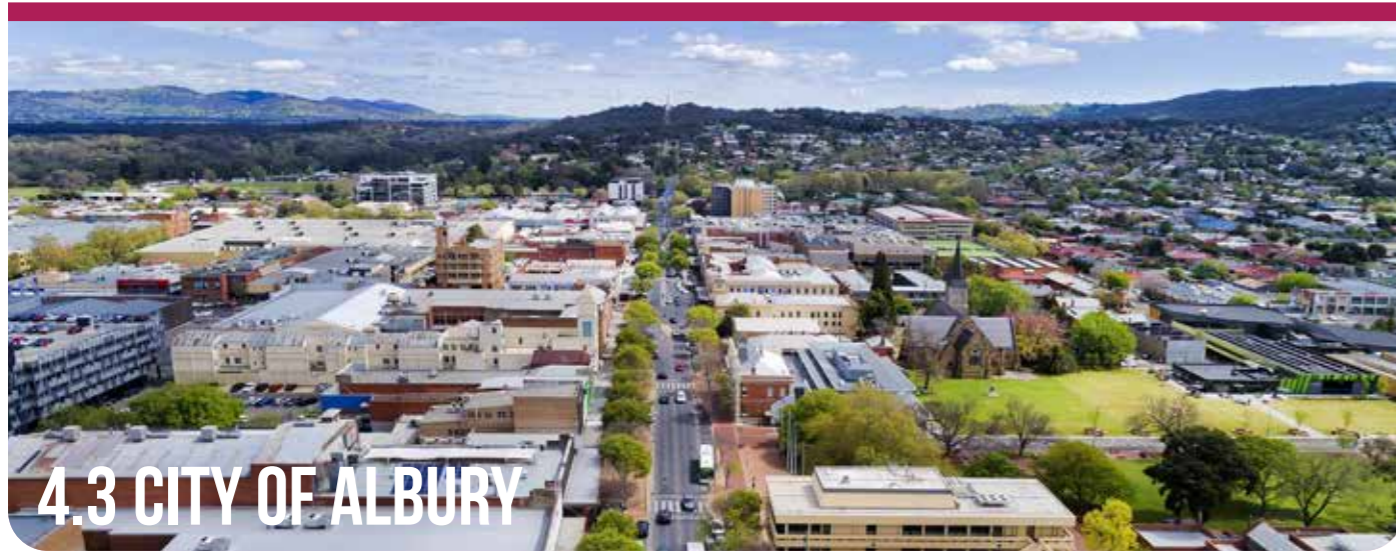
Forge strategic partnerships: The partnership between Holla-Fresh, Bio Gro and Rainbow Bee Eater exemplifies how cross-sectoral collaborations can create efficient, circular processes that benefit the environment and economy.



Governmental facilitation and funding support are key: The involvement of GISA in coordinating and supporting the initiative between Holla-Fresh and its partners showcases the positive impact of government facilitation on circular economy endeavours.



Capitalise on geographic location: Mount Gambier’s strategic position facilitates cross-regional economic activities, offering lessons on leveraging location to enhance the scope and impact of circular economy practices.



4.3 CITY OF ALBURY

Overview

The City of Albury is a regional hub for waste management and recycling located on the Victoria-New South Wales border. With a population of 56,666, it is 544 kilometres from Sydney and 326 kilometres from Melbourne. The city is operating a landfill facility which accepts more than 200,000 tonnes of waste from a large area within the Riverina and Murray Joint Organisation (RAMJO) region which consists of 13 Local Government Areas between Albury and the South Australian border. With the council striving to be at the forefront of the circular economy, many projects have been implemented to divert waste from landfill, including plastics, cardboard, steel, lights and bicycles. Currently, the waste recovery rate in Albury is about 53% demonstrating a lot of materials are already being reused and recycled in the area.

One of the materials the facility recycles is polystyrene, which is melted down and exported to Singapore and Shanghai where it is then turned into items such as picture frames, skirting boards, or kitchen cupboards. Another circular economy project addresses food waste from commercial businesses, which is collected and processed using both maggots and robotic technology to become a source of protein for livestock. The council also applied for funding from the state (NSW Bin Trim Networks Program) to help support local business to reprocess food waste and has made policy changes for the commercial food sector, which will come into effect in 2025. In addition, cooperating with Transport for NSW, the council is developing an exchange-type platform for businesses in the manufacturing sector to help examine and improve waste streams.

In July 2024, under the National Plastics Recycling Scheme (NPRS), The City of Albury will start a new pilot project for soft plastic recycling which will cover 10,000 households– not only within the council area itself but also for South Australian and Victorian councils – with the goal of developing a national scheme for household and commercial soft plastic collection and recycling services. The plastics will be sent to APR, a Melbourne-based firm, for processing. Locally, soft plastics are collected at the landfill facility and sent to Plastic Forest, a local manufacturer of recycled plastic products.



PET plastic bottle recycling plant: The largest PET recycling plant across the nation has been established in Albury, through a \$45 million venture formed by Pact Group, Cleanaway Waste Management, Asahi Beverages and Coca-Cola. This facility aims to recycle about one billion PET beverage bottles annually to significantly cut down on the nation's plastic waste, create jobs and promote a domestic circular economy.

Figure 13: PET plastic bottle recycling plant, Albury

Drivers of circular economy

There are three major drivers for the development of the circular economy in the Albury region: market demand from the local food manufacturing and packaging industries; the council's continuing investment and vision in embedding sustainability into the economy; and the need to address the finite capacity of landfill.

Firstly, the council has already been investing in sustainability and there will continue to be a large focus on circular economy in future investment. The council sees the combination of sustainability and economy as a crucial step going forward. The council not only recognises the value of the environment but also has a vision that the circular economy can create jobs and opportunities.

Secondly, the need to address the finite capacity of landfill sites spurred the City of Albury's circular economy efforts even further. The looming challenge of landfill saturation necessitated innovation to sustain landfill usability for future generations. This urgency was compounded by international factors such as China's ban on importing Australia's plastic waste and domestic regulations against exporting waste, prompting a search for local recycling solutions. In addition, the *(Draft) Waste Management Strategy 2023* has set a target for the city's recovery rate of waste at 80%, in line with the state 2030 targets.

Lastly, market demand from Albury's robust food manufacturing and packaging industries also drives circular economy initiatives. Major global food producers, including Mars, Nestle and Danone, operate in the region generating substantial demand for sustainable packaging materials. This demand is supported by significant recycling efforts from companies like Visy, which has established manufacturing facilities in Albury, and recycling entities such as Circular Plastics Australia, Cleanaway, Geofabrics and Plastic Forests, all contributing to the region's circular economy framework. Albury's strategic location further enhances its appeal, offering efficient access to major cities like Sydney and Melbourne for material transport, further facilitating recycling and sustainability efforts within the region.

Benefits and challenges

In addition to the immediate environmental benefit from landfill diversion, the implementation of the circular economy has economic implications as well. Council interviewees explained that a 'large fee' was levied on landfilling of materials, which council then used to support local circular economy initiatives. For business, there are commercial viability benefits in transforming waste, adding value to it and using it. From a community perspective, initiatives such as plastics recycling, created employment and established large industrial developments. In the words of one interviewee from the council:

“It brings in large scale jobs, large scale industries’, including not only manufacturers but also logistics, finance, and all other supporting services.”

Although the council had the foresight in 2006 to purchase a vast tract of land, which later supported circular initiatives, land availability remains the largest restriction in developing a circular economy locally. In addition, another barrier is related to funding; the council has sourced a grant from the NSW EPA, but there are still some outstanding financial costs, associated with the development of significant infrastructure.

Collaboration

The council, especially the Resource Recovery team, play an active role in developing a local circular economy by advocating, running educational roadshows and working with stakeholders such as state authorities, neighbouring councils, local businesses and residents. The team works closely with the EPA and RDA NSW which provide information about projects, opportunities and funding.

The City of Albury has established good relationships with neighbouring councils, made easier because it provides waste management and recycling services and strategies for the latter. Due to economies of scale, many small councils cannot build a waste management system and therefore rely on the City of Albury. Waste managers from the 13 councils across the RAMJO region are recognised as important stakeholders. The council practices knowledge-sharing in addition to resource-sharing and holds information sessions and conducts tours at the Albury Waste Management Facility to upskill neighbouring councils.

Finally, although it is more the Resources Recovery Team than businesses that start circular economy conversations, there are more smaller businesses coming on board, producing ideas and events, and finding ways to participate. Residents self-monitor negativity in the community realising that building a new landfill costs more than implementing the circular economy.

Policy and regulation

As with Bega, the City of Albury is a local government on the move in implementing circular economy initiatives and developing the local economy whilst building ‘resilience through diversity.’¹⁴⁸ The circular economy is a core goal driving a comprehensive suite of initiatives and detailed policy levers, such as a *Social and Sustainable Procurement Policy*, aligned with the *National Packaging Targets* and extended producer responsibility. Effective partnerships working together to implement policy-driven initiatives have seen the building of the Albury-Wodonga Circular Plastics Australia PET recycling facility (funded by *NSW Waste Less, Recycling More* and *Recycling Modernisation Fund*) along with solar panel recycling, a hydrogen park and an emphasis and an emphasis on renewable energy.

Generally, state authorities such as the EPA and the NSW Department of Primary Industries and Regional Development have been very supportive of Albury’s development of circular economy practices, particularly in terms of funding. They also provide guidelines and targets for local agents to keep working to the high levels needed to align with state targets, for example, in terms of carbon emission and job generation.

A policy gap the City of Albury has encountered, as a regional hub for waste management, is the differing legislation in Victoria and NSW when it comes to reporting waste. Therefore, it is a question about standardisation which requires assistance from federal and state governments. There are other challenges which need to be addressed by Cross-Border Commissioners and other agencies to facilitate the cooperation of councils near state borders. In addition, federal and state governments, could also help develop a digital portal or platform that could be shared across industries and councils in the region.

Another policy gap is relates to planning and zoning, as the region needs more industrial land to develop large-scale infrastructure projects and for the commercial sector. There is a conflict between prioritising residential and industrial needs. Although neighbouring councils have land available, which presents opportunity, a number of issues would need to be addressed for this sort of proposal to move forward.

Furthermore, there has been calls for federal and state governments to be more active in legislation and regulation especially when Australia is facing international competition in implementing a circular economy. A circular economy requires the development of new technology. While governments need to ensure that technology minimises harm to society or the environment, at the same time it also needs to ensure regulations do not hold back developments. In other words, governments need to achieve a balance in the regulation of new technology.

KEY LEARNINGS



Drivers: The council’s continuing investment and vision in embedding sustainability into the economy, the need to address the finite capacity of landfill and the market demand from industries are the most important factors driving the development of a circular economy in the region.



Barriers and challenges: Land availability is the largest barrier for the circular economy and the resourcing, planning, and zoning of industrial land in the region is what the council needs the most help with from federal and state governments.



Policy gaps: In addition to land resourcing, the lack of national standardisation for waste recycling and regulations on new technologies needs to be addressed. Policies and platforms that can facilitate the cooperation between councils or between businesses and industries are critical to the development of circular economy.





4.4 CITY OF LAUNCESTON

Overview

Launceston is the second-largest city in Tasmania, with a population of 71,878. It has a regional landfill which takes 100,000 tonnes of waste per year. Landfill diversion and the circular economy are important parts of waste management for the City of Launceston. The council has established kerbside collections of FOGO which are then processed into materials for reuse. Launceston has an opt-in FOGO scheme and will change over to a scheme for all residents in the future. Locally, there are also polystyrene recycling machines which produce polystyrene bricks that can be used for producing composite wood products, plastic fibre products and pallets. Moreover, the council is doing a business feasibility study for a new diversion facility which is estimated to be able to divert 50-60% of waste, such as scrap steel and other manufacturing materials from landfill.

At the same time, the City of Launceston's procurement policy is now incorporating more sustainability practices, including looking at material sourcing, manufacturing, packaging and if products are designed for single use or can be repaired, repurposed or reused.

The local industry sector is also developing many circular initiatives. For example, civil construction companies like Downer, take in glass and rubber products and used construction and demolition waste, like concrete, metal, bricks and gas pipelines, to produce new materials.



Drivers of circular economy

In Launceston, both the council and businesses are major players and drivers of the circular economy. For the council, landfill diversion is the major motivator. The accumulation of waste, which can be reused but goes to landfill, negatively impacts the environment and reduces efficiency of resource use and potential opportunities.

From a business perspective, many companies are looking to become more sustainable for commercial reasons. Although reducing costs might not be an economic driver for implementing a circular economy, as in many cases raw materials could be cheaper than reprocessed, businesses still see this as an opportunity to deliver sustainable profits in the future. Entrepreneurship and innovative spirit are an important driver for a circular economy.

Moreover, state authorities such as Natural Resources and Environment (NRE) Tasmania and the Tasmanian Waste and Resource Recovery Board play an important role in the development of the circular economy in the region. For example, prioritising circularity is one of the four pillars of the *Tasmanian Waste and Resource Recovery Strategy 2023-2026*. The City of Launceston has received various grants and funding to build circular economy infrastructure through these authorities. A waste levy is a further economic instrument the state government uses to drive businesses and communities towards circularity, although our interviewees remarked the levy is too low to make a significant difference. There are also some regional waste management organisations such as the Northern Tasmanian Waste Management Group based in Launceston which provide grants for circular economy development.

The Udder Way, Launceston, Tasmania: The Udder Way is a reusable primary packaging manufacturer that produces high quality reusable plastics in the form of 18 litre kegs and dispensing systems that offer a solution to plastic pollution generated by the dairy industry. Its mission is to eliminate single-use plastics globally.

Benefits and challenges

The largest benefit of implementing the principles of circular economy is increased landfill diversion. For example in 2023, about 30,000 tonnes of food and garden organics in Launceston were recycled rather than being landfilled. Diverting landfill limits impacts on surface and ground waters as well as the atmosphere through reducing carbon emissions. There are also economic benefits, such as improving resource efficiency as Tasmania has scarce minerals and resources. From a business perspective, there is add-on value from recycled products especially from sustainability branding.

Some of the key challenges and barriers for the City of Launceston to further circular economy initiatives involve geographical issues and economies of scale. Because Tasmania's economy is relatively small, market access can be difficult and may involve transportation across long distances. Scale of economy issues also limit the possibility of on-island processing of waste.

Another barrier facing Tasmania is a lack of infrastructure to support a circular economy, which also relates to economies of scale. Although the landfill levy has made some difference, it is still not big enough to support large-scale infrastructure projects or to significantly change the behaviour of producers and consumers. For example, the City of Launceston has looked multiple times at setting up a facility for recycling construction and demolition waste, but it has been too expensive to fund.

Lastly, the costs of recycling (except for organics) are still very high compared to landfilling. This undermines people's willingness to transfer from landfilling to recycling. In addition, interviewees suggested there is still much ambiguity in everyday recycling education and inconsistency in service, and thus a lack of shared vision, which impedes the implementation of a circular economy.

Collaboration

The circular economy in Launceston is largely driven by state and local government, but civil construction companies and e-waste stakeholders and the community actively participate. At the state level, the Department of State Growth and Office of the Coordinator General have been driving the awareness of sustainability and the circular economy, particularly in Northern Tasmania. While the state is leading the policy and awareness space, local government leads through the business of landfill diversion. The Australian Government has not been largely involved in the development of the circular economy in Launceston, however state waste action plans align with those at a federal level.

Policy and regulation

The Northern Tasmanian Waste Management Group in partnership with the Northern Tasmania Development Corporation is delivering post COVID-19 economic recovery grants to drive circular economy innovation programs in the region. This strategy has enabled projects as varied as FOGO implementation, refurbishing hearing aids, building furniture from reprocessed timber pallets and recycling plastic guideposts.¹⁴⁹ The City of Launceston's proactive commitment to the circular economy shines through in its policies and implementation strategies. These include *Towards Zero Emissions Action Plan*, an *Economic Development Strategy*,¹⁵⁰ a *Sustainability Action Plan*, with a focus on strategic planning for the future and grant funding for local businesses to introduce circularity. The council notes alignment of a circular economy approach with *Tasmania's Waste Action Plan* and national policy and includes policy levers such as the Tasmanian waste levy and impending *Container Deposit Scheme*.

The first policy gap encountered by interviewees is the lack of national standards and specifications for circular economy participants to adhere to, such as for processed materials. Interviewees commented that the Australian Government should be more involved in providing guidance and regulations for circular economy initiatives. Interviewees also noted there was scope for federal policies around circularity being achieved in the design process of new products, restricting the production of goods that cannot be repurposed or recycled.

Another gap is in circular economy education. There is also a lack of extended consumer responsibility which can encourage more community care about landfilling, recycling and sustainability. One suggestion is for a national law or standard around labelling of products which could show what type of material is used, whether it can be recycled and what the health consequences are.

Finally, interviewees discussed a need to increase the waste levy in Tasmania to provide funding for infrastructure and other projects. Funding and infrastructure are the two biggest factors that are restricting the development of Launceston's circular economy and securing funding pathways was highlighted as a priority.

Figure 14: Edward Crick, the founder and director of the Udder Way in Launceston

KEY LEARNINGS



Drivers: Both the city council and businesses are important players in the circular economy. For the council, landfill diversion is a major driver for the implementation of circular economy, while for businesses, sustainability, branding and future commercial opportunities are important motivators.



Barriers and challenges: The geographic isolation, the scale of the local economy and the lack of funding restricts circular economy development in the region.



Policy gaps: In addition to further funding support from federal and state agencies and increasing the waste levy, national standardisation and everyday education of waste recycling are also much needed to extend both producers and consumers' responsibility for a more sustainable economy.



Overview

The Rockhampton Regional Council is located in Central Queensland, about 600 kilometres north of Brisbane. It has a population of 84,517 and a land area of 657,500 hectares. In 2022, the Rockhampton Regional Council issued a [Circular Economy Discussion Paper](#) which explored high-level opportunities across significant industries such as agriculture, energy and civil construction. In 2023, the council published its [Resource Recovery Strategy: Building a Circular Economy](#) with a target of zero waste by 2040, highlighting its circular economy principles, along with an accompanying framework and opportunity analysis. Further, the council has included in its [Operational Plan 2023 - 2024](#) a strategy to implement feasibility studies to move forward its circular journey, investigating capital and operational costs, economic outcomes and action plans.

There are several circular economy programs operating in the Rockhampton region. For example, the [Hyacinth Recovery Pilot Project](#) aims to remove 500 tonnes of water hyacinth from Murray Lagoon near Rockhampton. It is estimated the invasive weed deposits 1000 tonnes of organic nitrogen onto the Great Barrier Reef annually, and clogs local waterways. The water hyacinth will be made into a compost for improving soil nutrition at parks and farms in the region. The project is exploring an innovative way to deliver cost-effective and efficient solutions for environmental problems, providing an opportunity for the agricultural sector.

The [Containers for Change](#) program also operates in the region, encouraging people to donate eligible containers which are then recycled and made into more containers, as well as road base, bicycles and prosthetics. While Containers for Change collects and facilitates the recycling of these containers, [Kriaris Recyclables Processing](#) owns and operates the glass processing plant, using glass from the Containers for Change program. This collaboration contributes to civil construction, breaking down glass containers into sand for different road products. This project has a long-term legacy as it 'paves the way for Rockhampton's roads and jobs'¹⁵¹ and reduces the city's dependency on materials transported from elsewhere in the state or imported from overseas.



Building a low carbon economy, Rockhampton, Queensland: Opened in 2022, the Rockhampton Regional Council's Upcycle Village has four primary goals – to divert waste from landfill, support innovation into financially sustainable operations, connect with the community and provide education on the circular economy. It is a site designed for local upcycling projects and also provides a training base for local unemployed people to gain experience in restoring rescued furniture for local housing programs and public purchase.

Figure 15: Upcycle Village launched in Rockhampton

Drivers of circular economy

The drivers for the development of a circular economy in the region are waste minimisation, resource recovery and capacity building. Another driver noted by Rockhampton Regional Council is the desire to develop a competitive advantage in relation to land and water resources. The council aims to support the continued development and efficiency of the region's beef industry by better utilising water resources. Further, circular economy practices have been embedded in the council's sustainability strategy and there is a desire to minimise waste locally, as demonstrated in its goal to produce zero landfill by 2040. The Rockhampton Regional Council also aspires to be a leader in circular economy practices and is seeking out innovative opportunities and partnerships, including private-public.

Benefits and challenges

There are both economic opportunities and environmental benefits to developing a circular economy in the Rockhampton region, including the construction of new infrastructure and the development of new businesses. The local agricultural and food production sector could also benefit from the introduction of circular practices, as more sustainable production practices often lead to a premium on products.

However, the council has encountered challenges and barriers on its path towards circularity, especially around accessing information, funding and obtaining relevant approvals relating to the use of new materials and technologies. Interviewees noted difficulty in accessing information from various state government departments; sourcing and aligning resources with other agricultural and energy projects in the region; and a desire for more investment from state and federal governments.

Collaboration

In addition to Rockhampton Regional Council, other stakeholders in the development of the circular economy locally include state government agencies such as the Department of Agriculture and Fisheries, the Department of Environment and Science and the Department of Regional Development, Manufacturing and Water. Other collaborators include agricultural industry leaders like the Central Queensland Livestock Exchange, farmers, energy companies and the civil construction sector.

Energy companies also play an important role in the renewable space. For example, CleanCo Queensland is one of the biggest players in the production of biofuels. This organisation is state-owned and has the drive and support from the state to drive circular approaches. For a significant volume of biofuel to be produced, an extensive amount of land is required, making local landholders another important stakeholder.

Rockhampton Regional Council's representative acknowledged that council has undertaken limited community consultation about the circular economy but has a desire to ensure there is an educated understanding, good will and acceptance of projects that proceed locally. The interviewee expressed that when people can see the practical application of circular principles the wider community will resonate with the theory of circularity.

Policy and regulation

Rockhampton Regional Council's waste and resource recovery strategy aligns with and is levered by Queensland's Waste Management Strategy and the National Waste Policy, although it does mention 'ongoing regulatory uncertainty'.¹⁵² While the council is currently working on a circular economy plan, its existing corporate plan, sustainability strategy and circular economy framework inform future planning. This includes the implementation of FOGO recycling and other circular economy initiatives, alongside infrastructure development and building of local markets.

Interviewees noted a lack of funding for waste recycling and a desire for state and federal governments to provide funding to help develop regional resource recovery centres. It is felt the centres would act as a catalyst for commercial investment and entrepreneurship surrounding circular practices. More comprehensive regulation is also desired to address information gaps.

KEY LEARNINGS



Drivers: Based on a good understanding of the competitive advantages of the region, the Rockhampton Regional Council recognises significant opportunities in a circular economy, in particular around waste minimisation, resource recovery and capacity building.



Barriers and challenges: The lack of appropriate funding, information gaps and the long approval processes for new products and technologies impede the development of a circular economy locally.



Policy gaps: Significant investment from both the state and federal governments is much needed and information gaps and long approval processes need more attention. In addition, the council acknowledges it needs to boost community engagement on local initiatives.



4.6 CENTRAL DESERT

Overview

The Central Desert is a vast arid region north of Alice Springs in the Northern Territory, covering 283,000,000 hectares across the Tanami Desert. The Traditional Owners of the land are the Anmatjere, Eastern Arrernte and Warlpiri people and two-thirds of the region's inhabitants are First Nations people. This rugged landscape has a population of only 4,200 people across nine communities and most of the area is Aboriginal freehold land.

Vast geographic distances, high transport costs and limited access to markets mean that accessing the opportunities of the circular economy is challenging for remote communities including Central Desert.¹⁵³

The Central Desert Regional Council works with Local Authorities, the Central Land Council and a range of partners to deliver services across the region. The council has recently developed a Waste Management Strategy 2023-2027 to address the needs of communities.

The strategy aims to provide sustainable, equally accessible waste management services aligned with the Waste Management Hierarchy and circular economy principles.

One focus of the strategy is to more accurately categorise waste collected from communities by upgrading recycling bays. This is essential for understanding the volume and types of waste collected to improve landfill management and inform the development of new solutions.

Community engagement and education is prioritised as a means of empowering communities to participate more in waste and resource recycling. Through the strategy, the council will coordinate education campaigns at schools and Local Authorities and introduce a two-bin system of red and yellow bins in remote communities to separate recyclables from general waste.

Drivers of circular economy

Legacy waste is a significant issue in the Central Desert and other remote communities. High transport costs and limited local infrastructure mean that waste accumulates over many years, surpassing the capacity of landfill. The need to address increasing volumes of waste is a primary driver of circular economy in the Central Desert.

While Section 19 Land Use Agreement of the Aboriginal Land Rights Act requires local governments to restore land that has been damaged by the accumulation of legacy waste, remote councils do not generate significant revenues from waste disposal due to a low rate-paying base. Hence, remediation has become an increasingly unbearable cost for many councils. Additionally, the council envisages a future with more pronounced circular economic approaches to reverse the situation of overwhelmed landfills and attain longer term sustainability. Accordingly, the council is looking at opportunities to generate some revenue and invest it back to the communities, as well as develop the employment and skill base.

Federal and Northern Territory Government policies promoting circular economy principles have empowered local councils to adopt circular economy initiatives. These policies, alongside available grants and funding opportunities have created new possibilities for tackling waste management in remote areas.



Yuendumu Recycling Shed, Central Desert Regional Council, Northern Territory: A seven-bay recycling shed has been built using government grant funding and is designed to introduce recycling to the community. It enables the community to drop-off of bottles, tyres, gas bottles, motor oils, paints and chemicals, batteries and white goods.

Figure 16: Yuendumu Recycling Shed

Benefits and challenges

Improved waste management and recycling boost community amenity, appearance, health and wellbeing. There are also economic opportunities connected to revenue generation through reuse and/or recycling of waste materials. Also, circular economy initiatives can build capacity within communities by training and employing residents and reduce building and construction costs through recirculation of locally recycled materials.

The biggest barriers for the Central Desert are geographic distance and economies of scale. As a remote area in Northern Territory, Central Desert does not have much access to the recyclables market and the 12 waste management facilities within the region are separated from each other by sometimes thousands of kilometres. Transporting recycled materials to central facilities or markets is not only logistically challenging but also economically unviable due to high freight costs. As most communities are very small, the challenges of low economies of scale mean that recycling and waste management operations are not cost-effective.

The absence of local markets for recycled materials means that even if recycling initiatives are successful in collecting and processing materials, finding buyers or uses for these materials within the region can be difficult. Dependence on external companies, such as scrap metal dealers for the recycling of materials like car bodies, requires ensuring that these activities are economically viable for all parties involved.

Another challenge is the significant need for investment in infrastructure to facilitate waste sorting and recycling processes. Funding these infrastructure improvements is challenging because of limited financial resources due to a narrow rate base. While Australian and Northern Territory Government policies support circular economy principles, the grants and funding available often come with conditions that may not align with the specific needs of remote and regional areas. This can limit the ability of local councils to access the funds necessary for implementing circular economy initiatives.

Finally, as local governments do not have authority over water and energy supply, which is within the jurisdiction of territory agencies, broader circular economy initiatives such as water recycling or renewable energy are difficult to initiate at a local level.

Collaboration

Collaboration is key to progressing circular economy in the Central Desert region. The region is home to a number of collaborative partnerships including a first-of-its-kind study led by Charles Darwin University in partnership with Central Desert Regional Council and Traditional Owners to analyse legacy waste in the region and identify options to manage this waste in ways that support the circular economy.

Collaborative efforts are also underway to identify economic opportunities in the diversion and recycling of different types of waste. For example, through a Federation Funding Agreement with the Northern Territory Government, the Australian Government has committed \$4 billion over 10 years to improve housing in remote communities. Part of this package involves rebuilding and refurbishing houses in remote communities, which creates significant amounts of construction and demolition waste. The council works with industry partners to recycle concrete waste into recycled concrete aggregate. Another initiative recycles discarded car bodies by engaging metal recyclers and scrap metal dealers.

In addition, Central Desert Regional Council partners with neighbouring councils to access economies of scale where small volumes of some waste streams mean that it may not be worthwhile for the region to conduct some projects by itself. For areas with a small population or economy, collaborative actions are an important solution to implement circular economy and other initiatives.

The Central Desert region consists of nine remote First Nations communities. Communities are actively engaged in land management as Traditional Owners and in local government activities through Local Authorities. The council delivers municipal services to communities and leads engagement and education around waste management. The council hosts community meetings to encourage residents to participate in waste management and recycling and to build consensus around things they want to achieve together. Council staff interviewed reported strong relationships with Traditional Owners and collaborative relationships through presentations, discussions and consultation on circular economy and waste management.

Policy and regulation

The Central Desert Regional Council faces a different set of challenges to other regions outlined in this report. In its *Strategic Plan*¹⁵⁴, the council notes the policy levers of the *NT Circular Economy Strategy 2022-27*¹⁵⁵ and the need to develop an aligned waste management strategy. Associated actions include the introduction of container deposit schemes, de-littering incentives, recycling initiatives and better management of waste management facilities. Policy alignment has allowed for significant grant funding to develop recycling bays at these facilities.

Despite the progress made, there are notable policy gaps and challenges that need addressing. One gap is the restrictive nature of some grants, which may not align with the specific needs and conditions of remote areas. There is a need for policy and funding frameworks that are flexible and adaptable to the diverse contexts of these regions. Otherwise, many rural and remote communities might not be able to access the funding they need. Additionally, there is an opportunity to improve infrastructure and systems for waste separation and recycling, which requires substantial investment that councils alone cannot afford.

Future actions should focus on enhancing policy flexibility and responsiveness to the needs of remote communities, increasing funding and support for infrastructure development and continuing to foster collaborative approaches across councils and stakeholders. Another crucial area is expanding education and engagement efforts to build community support and participation in circular economy initiatives. Lastly, it will be essential to explore innovative solutions and technologies to address the unique challenges of waste management and recycling in remote areas for the sake of advancing the circular economy in regional Australia.

KEY LEARNINGS



Drivers: Addressing the volume of waste, including legacy waste, is a key driver for circularity in the Central Desert. However, the region is also committed to circularity more broadly, recognising that the development of a circular economy is related to the wellbeing of the whole community.



Barriers and challenges: Financial constraints, geographical restrictions and lack of economies of scale are the largest barriers for the region. In addition, restrictive requirements of government grants sometimes limit the accessibility of funding to remote communities.



Policy gaps: More tailored grant policies and guidelines are needed as the requirements of the federal and territory grants might sometimes overlook the local conditions of rural and remote communities. In addition, expanding education and engagement efforts to build community support and participation in circular economy initiatives is also crucial.

05. DISCUSSION

The case studies in this report highlight the experiences of a selection of regional Australian communities in implementing circular economy initiatives. The findings have been synthesised into the key themes of regional uniqueness; policy and governance; leadership; innovation and investment; collaboration; and community engagement.



Regional strengths and challenges

Regions exhibit unique characteristics and common challenges that differ from urban areas. For example, challenges related to geographic isolation, small population size and infrastructure deficiencies were evident across many regions and require targeted strategies.

Regions with strong circular economy practices also leveraged their unique attributes. For example, Albury has leveraged its location between Sydney and Melbourne to create a recycling hub that can service both major capitals. The Limestone Coast region capitalises on existing sustainable practices in traditional industries such as forestry, to lead the community in other circular economy activities.

Policy and governance

National and international regulatory frameworks to support circular economy practices are still developing. Current national and state/territory frameworks largely focus on waste management aspects of the circular economy rather than resource management and design. While there are well defined roles for the different levels of government in the circular economy, there is often a lack of coordination and supporting overarching policy architecture. This is limiting regional Australia's ability to expand circular initiatives.

Governments at all levels must continue to develop and articulate a comprehensive vision for the circular economy in Australia and build an enabling framework that supports businesses and communities to implement it. This includes the development of cascading regulatory frameworks that are aligned across national, state and local contexts; and continuing to develop policies around natural resource conservation, design and manufacturing for circularity and product stewardship.

Individual leadership

At all levels, from businesses to councils and community organisations, individual leadership and innovation is pivotal for circular economy development in regions. Businesses thrive on the entrepreneurship of individuals keen on seizing economic and environmental opportunities, showcasing the importance of personal initiative in driving a circular economy.

Councils and organisations leverage internal champions to spearhead sustainability efforts and community engagement. Individuals such as waste managers and sustainable economic development officers therefore form a pivotal point between implementing state policy in accordance with local economic and community capacity. Their efforts to foster local solutions and community participation are crucial for effective resource management and waste diversion, highlighting the role of individual influencers in advancing circular economy principles.

This leadership is inspired by many different agendas, from the farmer using washed up sea grass to combat mineral deficiencies in their cattle – now a national pastoral additive business – to a council economic development officer facilitating knowledge-sharing networks of circular economy businesses.

On the contrary, poor leadership and management might limit commitment and support for sustainability initiatives. A lack of a clear vision of what to expect and how to measure the outcomes could be a large challenge for implementing circular initiatives in regions.

Innovation, infrastructure and investment

The advancement of circular economy practices in regional Australia faces challenges due to funding misalignments and infrastructural deficits. Traditional grants often fail to meet the specific demands of regional businesses engaged in circular practices, indicating a gap in funding suitability. This often does not align with the specific needs of regions or support the risks associated with innovative circular economy projects. The absence of state and federal support further exacerbates these financial challenges, leaving businesses to navigate the financial burdens of circular economy initiatives largely on their own. This risk-averse lending structures therefore hinder innovation, leaving many innovative endeavours unsupported.

The scarcity of local waste management infrastructure, compounded by high transportation costs and logistical complexities, significantly hinders the efficacy of recycling and waste reduction efforts. These infrastructure challenges, often described as the 'tyranny of distance,' are a major barrier to the adoption and scalability of circular economy models in remote areas. Additionally, limited land availability for new circular economy initiatives puts further strain on already stretched local government areas, hindering the expansion of circular practices. These logistical complexities intertwine with economic factors, influencing the decision-making process for many local councils and communities.

To overcome these barriers, targeted regional funding and schemes that incentivise regional investment should be considered.

Communities leading the way

Engaging the community at the grassroots level is vital for embedding circular economy principles into daily life and ensuring broad-based support for sustainability initiatives.

The Central Desert Regional Council's efforts to involve local communities in waste management practices underscore the importance of building consensus and fostering a culture of sustainability within the community. Community initiatives like repair cafés and resource recovery centres in the Bega Valley also highlight the grassroots movement towards revaluing materials and adopting circular economy principles.

Furthermore, the potential of the circular economy to achieve genuine transformation will be lost if communities are left behind. The literature review highlighted the risks of circular principles being implemented as a narrow, technocratic solution that is disconnected from grassroots community action and reinforces existing inequalities.¹⁵⁶ The failure to mobilise the whole system will limit the potential for transformational systems change through circularity. Therefore, grassroots practices which generate creative agency for communities and residents should be provided with enough support to actively participate in circular economy agendas.

However, effectively engaging communities presents significant challenges. While the passion and expertise of dedicated individuals can drive initiatives forward, broader community involvement necessitates targeted education, awareness and behaviour change campaigns.

To overcome these hurdles, it is crucial for governments and relevant organisations to focus on education and awareness, as well as provide financial, technical, and logistical support to grassroots movements to incorporate communities into the broader circular economy agenda.

Collaboration for system change

The role of collaboration is pivotal in advancing circular economy initiatives. To enact the required structural changes to policy, practice and resource flows, supporting *relational changes* are required through the formation of relationships and connections and reconfiguration of power dynamics.

The constrained economies and waste volumes of many small councils, such as the Central Desert, preclude the independent development of large-scale waste management infrastructure or circular economy initiatives. This underscores the importance of cooperation to address challenges collectively. The case studies have illustrated different types of collaborations, including:



Public-private partnership. The Limestone Coast benefits from the facilitation role played by government agencies like Green Industries SA, which helps establish networks between different private enterprises.



Educational and research collaborations. The University of Wollongong exemplifies the leading role of academia in facilitating circular economy initiatives in the Bega Valley, while businesses such as Beachport Liquid Minerals and Ocean 2 Earth have reached out to research institutions for product testing and to gain traction in the market through academic validation.



Multilevel government collaborations. The Queensland Government exemplifies this approach, actively facilitating collaborative frameworks that integrate local, state and federal resources with industry innovation.



Cross-border collaboration. The City of Albury sets a commendable example with its relationships with neighbouring councils within the Riverina and Murray Joint Organisation (RAMJO) region, offering waste management and recycling services and strategies.

To facilitate collaboration, national and state governments should create circular economy knowledge hubs such as *Circular Economy Business Innovation Centre (CEBIC)* for sharing best practices, innovative technologies and successful models for circular economy initiatives that can be adapted across various regions.

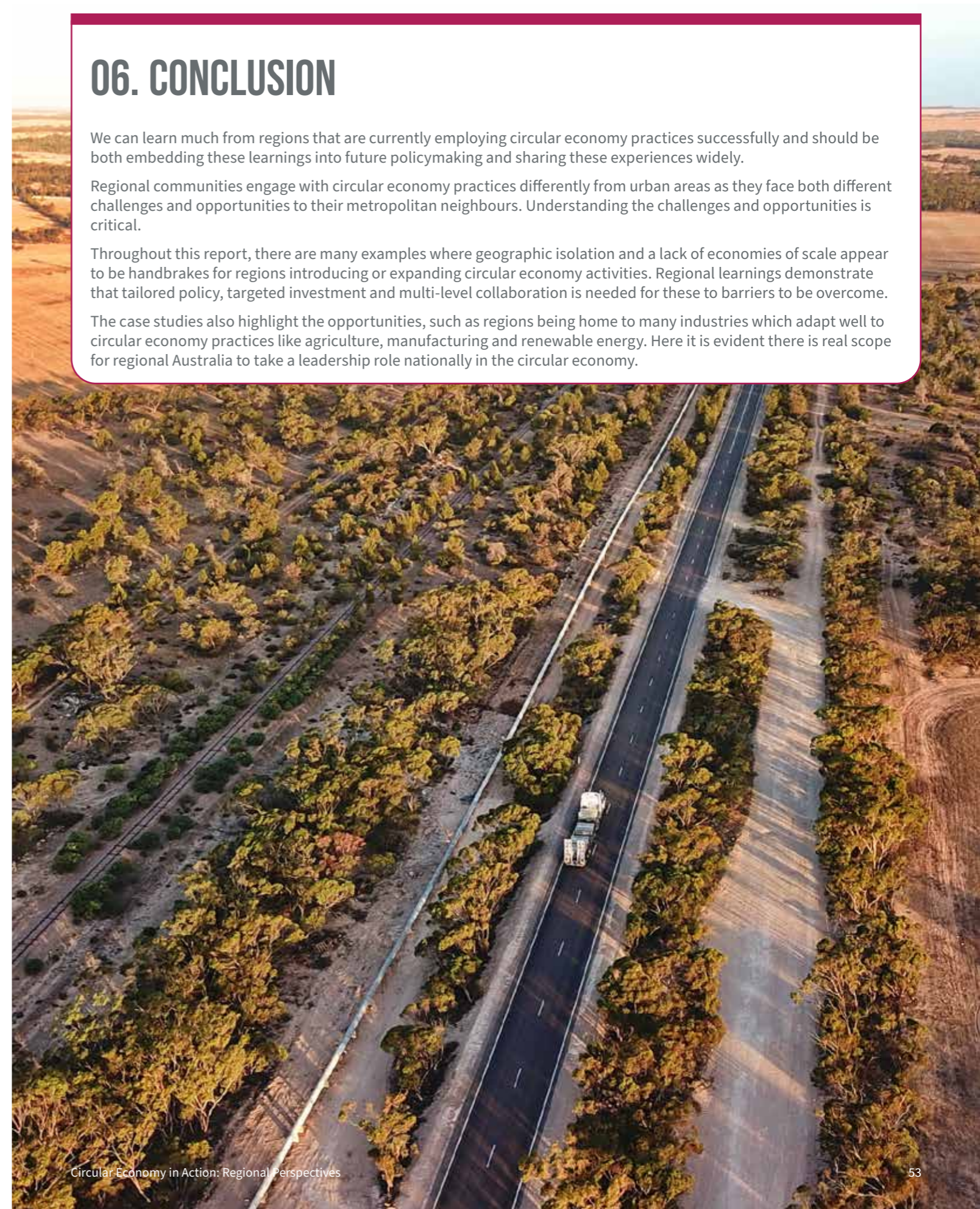
06. CONCLUSION

We can learn much from regions that are currently employing circular economy practices successfully and should be both embedding these learnings into future policymaking and sharing these experiences widely.

Regional communities engage with circular economy practices differently from urban areas as they face both different challenges and opportunities to their metropolitan neighbours. Understanding the challenges and opportunities is critical.

Throughout this report, there are many examples where geographic isolation and a lack of economies of scale appear to be handbrakes for regions introducing or expanding circular economy activities. Regional learnings demonstrate that tailored policy, targeted investment and multi-level collaboration is needed for these to be overcome.

The case studies also highlight the opportunities, such as regions being home to many industries which adapt well to circular economy practices like agriculture, manufacturing and renewable energy. Here it is evident there is real scope for regional Australia to take a leadership role nationally in the circular economy.



07. APPENDIX: METHODOLOGY

7.1 CASE STUDIES

This study was designed to explore exemplary implementations of the circular economy across regional Australia, utilising a comparative case study methodology that encompasses both in-depth case studies based on fieldwork and face-to-face interviews, and light-touch studies relying on desktop research and virtual interviews.

Six regions were selected for case studies: Bega Valley Shire (NSW), Limestone Coast (SA), City of Albury (NSW), City of Launceston (Tas), Rockhampton Regional Council (Qld), and Central Desert Regional Council (NT).

Two key selection criteria were primarily considered:

- **Degree of implementation in the circular economy:** Aim for regions that are pioneers in implementing circular economy initiatives.
- **Geographic diversity:** Ensure a diverse mix of coastal and inland regions across jurisdictions to understand the impact of geography on circular economy practices.

Bega Valley and Limestone Coast were chosen for in-depth case studies including field visits, while Launceston, Central Desert, Albury, and Rockhampton were selected for desktop studies. The fieldwork strategy was primarily driven by time and resource constraints rather than reflecting a judgement of the advancement of the circular economy in those areas.

7.2 DATA COLLECTION APPROACHES

Participant identification and recruitment

Participants in each of the case study regions were identified through a combination of purposive identification through new or existing relationships, combined with snowballing to leverage the networks of participants. During this process, the study identified stakeholders with high influence and existing networks and community communications pathways. The project did not recruit participants from at-risk groups and data collected has been de-identified.

The in-depth case studies encompassed participants from governments, industries, academia, and communities. In the Bega Valley study, interviews were conducted with 11 participants, four from government sectors, two from academic institutions, three from various industries and two community representatives. In the Limestone Coast study, nine participants were interviewed, including three from government, five from industrial sectors and one community representative.

For desktop studies, two to four government representatives in each region, such as council CEOs and the waste/sustainability managers participated in online interviews.

In-depth interviews

The in-depth interviews were employed in this research as qualitative methods. Both the online interviews and face-to-face interviews were designed to last approximately one hour. These sessions focused on three key themes:

1. The foundational development of the circular economy within the region, including drivers, barriers and benefits.
2. Stakeholder engagement.
3. The role of government and policy adoption.

Interviews were recorded through Microsoft Teams, and the notes were transcribed and thematically analysed to identify stakeholder relationships, patterns, challenges and opportunities related to the implementation of the circular economy in regional Australia.

Data management

RAI researchers are committed to conducting ethical, professional and scholarly research. Our research conforms to the *Australian Code for the Responsible Conduct of Research*. Written consent was obtained before collecting information and participants were made aware of their rights via Participant Information Sheets. Data is stored in accordance with the RAI's privacy policy and secure data storage protocols to reduce the chance of data loss, theft and unauthorised access. Data is de-identified.

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