LOCAL GOVERNMENT PROCUREMENT

CIRCULAR ECONOMY IN PROCUREMENT

Challenges and Recommendations for NSW Local Governments

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Acknowledgement to Country

In the spirit of reconciliation, Local Government Procurement acknowledges the Traditional Custodians of Country throughout this nation, and recognises the continuing connection to land, water and communities. We pay our respects to elders past, present, and emerging.

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Executive Summary

The integration of 'circular economy (CE) principles' in the procurement process of local governments is vital for promoting sustainability, innovation, optimising resource use, and supporting local businesses.

Local government plays a significant role by adopting CE practices in public procurement which can lead to tangible environmental, social, and economic benefits both for present and future generations.

Considering the importance of CE in the procurement function and the pivotal role of local governments, this paper addresses critical questions surrounding the integration of CE principles into procurement processes within local governments. Specifically, we **assess the current status of CE integration in procurement processes** within New South Wales (NSW) local governments and propose strategic actions they can take to overcome current challenges and enhance CE practices.

Through a comprehensive survey conducted among NSW councils, we assess current CE integration in procurement practices and explore initiatives NSW councils successfully apply to promote CE.

In addition, by examining current barriers NSW councils are encountering towards CE practices, we **identify key areas for improvement and propose strategic, customised, and actionable recommendations** to empower local governments in advancing their CE initiatives within procurement processes.

1 Introduction

In today's business landscape, where achieving sustainable development goals[1] are important, promoting **circular economy (CE) is essential for organisations to embrace sustainability/ESG principles**[2] by designing out waste, maximising resource utilisation and reducing environmental impact.

Within this context, **procurement plays a pivotal role**, serving as a key strategic lever for organisations to drive circularity throughout their supply chains[3]. Without direct involvement of procurement departments in CE initiatives, reaching CE targets is unlikely. Their critical role in selecting sustainable materials, fostering innovation, and facilitating internal and external collaborations makes them essential for integrating CE principles across organisational practices and achieving broader sustainability goals such as the United Nation's global sustainability goal number 12 (SG12) – 'responsible consumption and production'.

Strategic circular procurement practices – such as prioritising purchase of refurbished, reused, and recycled products – can extend the lifecycle of resources, reduce dependence on virgin materials, and minimise waste destined for landfills[4]. By adopting CE principles in procurement processes, organisations can unlock numerous benefits, including cost savings, job creation, innovation opportunities, and enhanced security of supply of raw materials[5]. Moreover, the significance of CE in procurement extends beyond financial gains, encompassing environmental preservation, social responsibility, and long-term resilience[6].

There is a **growing interest in local governments adopting CE initiatives**[7]. As key stakeholders in community development and resource management, local governments wield significant influence over policies, regulations and initiatives that shape the sustainability landscape. Their involvement is critical due to their proximity to communities and their ability to implement strategies that directly impact citizens' lives. They can drive positive change by developing infrastructure and allocating resources to support CE practices in areas such as resource conservation and sustainable development, making them indispensable partners in transition to a CE model.

Importantly, within local government operations, **procurement processes are being targeted by state governments**[8] as they influence the types of products and services that enter communities, making them a strategic lever for promoting circularity. Aside from '*pulling*' factors (such as generating financial savings[9] and attracting investments), there are some '*pushing*' factors (such as rules and regulations, market trends and citizen demand) leading local government to embed

[1] https://unglobalcompact.org/sdgs
[2] What is the difference between ESG and Sustainability? The applications in procurement
[3] https://wrapcymru.org.uk/resources/guide/sustainable-procurement-hierarchy-guidance
[4] https://www.greenindustries.sa.gov.au/circular-procurement
[5] Circular economy: definition, importance, and benefits | Topics | European Parliament (europa.eu)
[6] https://www.ellenmacarthurfoundation.org/circular-economy-procurement-framework
[7] https://lgnsw.org.au/common/Uploaded%20files/Submissions/FINAL-LGNSW-Submission-Circular-Economy-Policy-Statement-and-Discussion-Paper.pdf
[8] NSW Government Circular Economy Policy Statement Final
[9] Big Bag Recovery

CE principles as part of environmental, social, governance (ESG) goals into procurement practices[10].

To do so, local governments can take **proactive measures across various steps of procurement functions**. This includes integrating CE principles into procurement policies and guidelines, CE criteria in the tendering process, and fostering collaboration with suppliers to source sustainable products and materials. Additionally, local government can leverage its purchasing power to drive market demand for circular products and incentivise innovation in the private sector. By adopting a holistic approach to procurement, local government can lead by example and inspire broader adoption of CE principles in its communities. While integrating CE principles into local government procurement processes can yield significant benefits, it also presents challenges that must be addressed. By acknowledging and addressing these challenges head-on, local government can pave the way for a more sustainable and circular future for its communities.

The paper unfolds across two main sections.

Section 2 presents an overview of the CE, encompassing its definitions, core principles, and global initiatives, with a particular emphasis on Australia's involvement in advancing circular practices.

Section 3 reveals results of a survey distributed among NSW local councils, offering in-depth analysis of the current state of CE integration within these councils. This section also identifies prevalent challenges and provides strategic recommendations aimed at fostering further progress in CE practices within local government procurement processes.

[10] What is the difference between ESG and Sustainability? The applications in procurement

2 Circular Economy Overview

1.1 Definition and principles of circular economy

While **definitions of 'circular economy'** may vary in their nuances[11] such as the 9R circularity strategies in Figure 1, they converge on a central principle: the transformation of linear economic model, based on a 'take-make-consume-throw away' pattern, into closed-loop systems where materials and products are kept in circulation as long as possible to maximise their value and minimise waste[12].

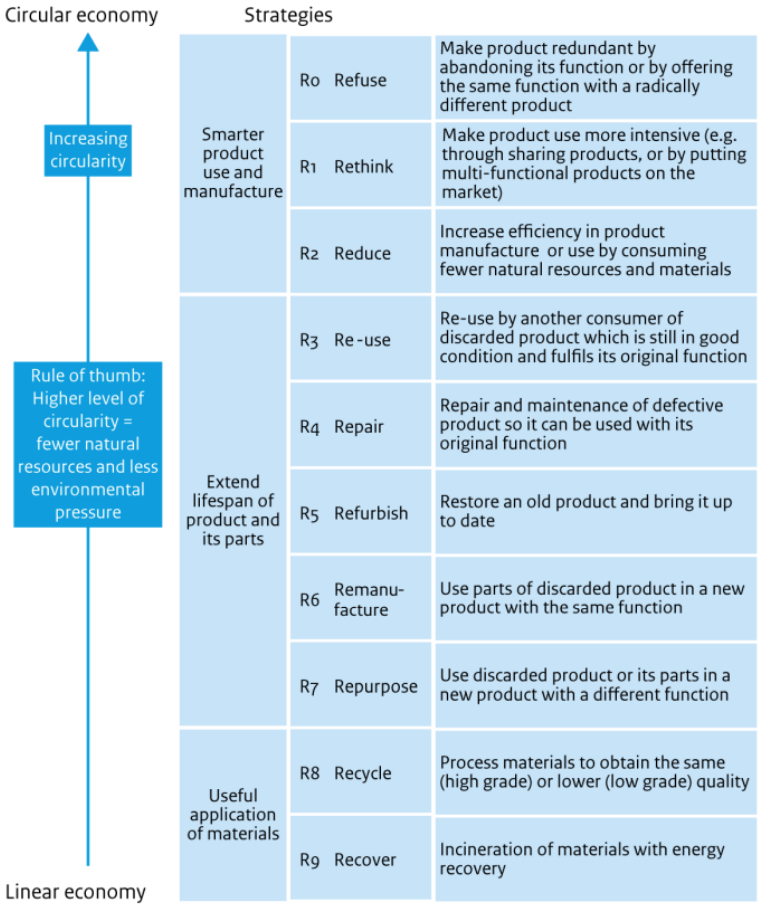

Figure 1. the 9R circularity strategies

(Source: Adapted from Potting et al. (2017, p.5))

Figure 2 shows the steps designed by European Parliament[13] to clarify the steps involved in the CE business model.

[11] Kirchherr, J., Reike, D. and Hekkert, M., 2017. Conceptualising the circular economy: An analysis of 114 definitions. Resources, conservation, and recycling, 127, pp.221-232.

[12] Circular Economy | EPRS | European Parliament (europa.eu)

[13] https://www.europarl.europa.eu/topics/en/article/20151201STO05603/circular-economy-definition-importance-and-benefits#:~:text=In%20February%202021%2C%20the%20Parliament,materials%20use%20and%20consumption%20by

Figure2. The circular economy model (Source: European Parliament Research Service)

The Ellen MacArthur Foundation[14] further **defines a fully CE as a system where materials never become waste, and nature is regenerated**. In a CE, products and materials are kept in circulation through processes like maintenance, reuse, refurbishment, remanufacture, recycling, and composting. According to the Ellen MacArthur Foundation, transitioning to a circular system requires adherence to three primary principles.

1: The first principle of CE is eliminating waste and pollution during the product design phase.

The design stage significantly influences a product's environmental footprint, accounting for approximately 80% of its overall impact[15]. This principle involves designing products which aim to minimise waste generation and pollution throughout their lifecycle, including manufacturing, use, and disposal. This can involve practices such as:

- **Designing for durability:** Creating products built to last and withstand wear and tear, reducing the need for frequent replacements and consequently lowering waste generation. A 1% increase in value added by economic activities linked to prolonged product lifetimes could generate €7.9 billion annually across the European economy.[16]
- **Designing for disassembly and recyclability:** Ensuring products are designed to make it easy to disassemble them at the end of their life cycle, facilitating recycling or reuse of their components and materials.

[14] https://www.ellenmacarthurfoundation.org/
[15] Circular Economy | EPRS | European Parliament (europa.eu)
[16] Circular Economy | EPRS | European Parliament (europa.eu)

- **Using environmentally friendly materials:** Selecting materials that have minimal environmental impact, that are reusable, biodegradable, recyclable, or sourced sustainably.
- **Minimising packaging:** Designing packaging that is minimal, reusable, or recyclable, thereby reducing waste generated from product packaging.

More examples can be found in the circular design guidelines for the built environment[17], developed by the Office of Energy and Climate Change, NSW Treasury, February 2023.

2: The second principle of CE is to circulate products and materials at their highest value.

This means keeping resources within the economic system as long as possible and extracting maximum utility from them. Instead of the traditional linear model where products are discarded after use, in a CE, materials are continuously reused, refurbished, remanufactured, or recycled to extract the greatest possible value from them. This principle aims to ensure resources retain their worth throughout their lifecycle, minimising waste, and maximising efficiency. The following practices contribute to the circulation of products and materials at their highest value within the CE framework:

- **Share**: Sharing resources, such as tools, equipment, or transportation, allows more efficient use of assets and reduces the need for individual ownership. This extends the lifespan of products by maximising their utilisation among multiple users, thus ensuring their value is fully realised.
- **Maintain/Prolong**: Regular maintenance and repair of products help extend their lifespan and keep them in use longer. By investing in maintenance, businesses and consumers can extract the maximum value from their assets, reducing the frequency of replacements and conserving resources.
- **Reuse/Redistribute**: Instead of discarding products after initial use, reusing them in their original form or redistributing them to new users extends their lifespan and prevents them becoming waste. This strategy ensures products continue to serve their intended purpose, thereby retaining their value within the economy.
- **Refurbish/Remanufacture/Repair/Upgrade**: This involves restoring products to 'like-new' condition, often with upgraded features or components. This process adds value to products by enhancing their quality and functionality, allowing them to be reintroduced into the market and extending their lifecycle.
- **Recycle:** Recycling involves recovering materials from 'end-of-life' products and using them to manufacture new products or components. By recycling materials, businesses can minimise extraction of virgin resources and reduce waste, while conserving energy and lowering carbon emissions associated with production processes.

More examples can be found in the Framework for understanding, measuring, and communicating waste prevention, developed by DCCEEW[18].

[17] https://www.energy.nsw.gov.au/business-and-industry/courses-and-guides/technology-guides/circular-design-guidelines-built
[18] Framework for understanding, measuring, and communicating waste prevention - DCCEEW

3: The third principle of CE emphasises the importance of transitioning from a linear economic model, focused on consumption and waste generation, to a circular model that prioritises restoration and preservation of the natural ecosystem.

'Regenerating' nature means instead of continuously degrading nature, we build natural capital. This may include restoring, revitalising, and replenishing natural ecosystems and biodiversity that may have been degraded or harmed due to human activities. It involves implementing practices and initiatives aimed at improving the health and resilience of ecosystems, including:

- **Reforestation and afforestation**[19]: Planting trees and restoring forests to enhance carbon sequestration, soil health, and biodiversity.
- **Habitat restoration**[20]: Rehabilitating degraded habitats, such as wetlands, grasslands, and coral reefs, to support native species and ecosystem functions.
- **Conservation and protection**[21]: Implementing measures to safeguard endangered species, preserve natural habitats, and mitigate threats such as habitat loss, pollution, and climate change.
- **Sustainable land management**[22]: Adopting land-use practices that promote soil conservation, water quality, and biodiversity, such as agroforestry, regenerative agriculture, and sustainable forestry.
- **Marine conservation**[23]: Protecting marine habitats, reducing over-fishing, and combating marine pollution to preserve ocean ecosystems and marine biodiversity.

More examples can be found in the Ellen MacArthur Foundation website[24].

Also, Product Stewardship[25] and Product as a Service[26] are examples where organisations promote these principles.

By exploring definitions and principles of CE, it becomes evident transition towards a CE model is imperative for addressing pressing environmental challenges and achieving long-term sustainability. By embracing principles of waste prevention, high quality products, and regeneration, businesses and governments worldwide are laying foundations for a more resilient and sustainable future.

1.2 Key benefits of circular economy

CE practices offer numerous advantages to organisations seeking to enhance their sustainability and resilience while protecting the environment. By adopting CE principles, organisations can achieve **significant cost savings through more efficient resource utilisation and waste reduction**.

[19] https://www.cleanenergyregulator.gov.au/ERF/Choosing-a-project-type/Opportunities-for-the-land-sector/Vegetation-methods/Reforestation-and-Afforestation#:~:text=A%20reforestation%20and%20afforestation%20project,as%20'carbon%20stock').
[20] https://cdn.environment.sa.gov.au/environment/docs/con-nv-habitatrestorationguide.pdf
[21] https://www.dcceew.gov.au/environment/epbc
[22] https://www.un.org/esa/sustdev/csd/csd16/documents/fao_factsheet/land.pdf
[23] https://www.marineconservation.org.au/
[24] https://www.ellenmacarthurfoundation.org/regenerate-nature
[25] https://www.dcceew.gov.au/environment/protection/waste/product-stewardship
[26] https://logisticsmatter.com/circular-economy-headphones-service/

For example, plastics pollution can cost industries such as fishing and tourism around $13 billion per year. A CE model including measures such as replacing plastics with alternative materials, redesigning plastics for easier recycling, and enhancing the scale of collection and recycling efforts could cut oceanic plastic waste by 80% over the next 20 years[27].

Research also shows **extending product lifespans** by 1% holds the potential to generate €7.9 billion annually, offering a significant boost to the European economy. In addition, it will help achieve a 30% increase in resource productivity by 2030, twice the "business as usual" pace, which could translate into a significant economic opportunity for the European Union (EU), with a projected 0.8% increase in GDP and the creation of 2 million new jobs[28].

One study found **implementing CE practices in packaging design** can add $US190-290 of value to every tonne of mixed plastic packaging collected[29].

Embracing circularity also fosters innovation, providing opportunities to develop new products, services, and business models that prioritise sustainability. Beyond financial benefits, CE initiatives enhance an organisation's reputation by demonstrating commitment to environmental and social responsibility. Compliance with environmental regulations is facilitated through CE practices, while access to new markets focused on sustainable products and services can drive growth and expansion. Engaging stakeholders in CE initiatives builds stronger relationships and promotes collaboration toward shared sustainability goals.

Furthermore, **transition to a CE can create more jobs** (700,000 jobs in the EU alone by 2030)[30], particularly in sectors such as renewable energy, recycling, and sustainable manufacturing, contributing to economic growth and social well-being.

A report preprepared by the Australian Department of the Environment and Energy in 2017 found the waste management sector adds $AU6.9 billion in value to the Australian economy, constituting 0.43% of the nation's GDP[31]. Another Australian Government study found for every 10,000 tonnes of material recycled, 9.2 full-time jobs are created[32]. This highlights the **dual benefits of recycling: reducing waste and emissions while also generating employment** opportunities, thereby supporting the economy for Australians[33].

More examples of environmental, social, and economic benefits of sustainability in the Australian context are provided in the Too Good To Waste Circular Economy Discussion Paper[34], published by NSW Environment Protection Authority (EPA).

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[27] https://www.wri.org/insights/5-opportunities-circular-economy
[28] https://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html
[29] The New Plastics Economy: Catalysing action
[30] Circular economy: definition, importance, and benefits | Topics | European Parliament (europa.eu)
[31] https://www.dcceew.gov.au/environment/protection/waste/national-waste-policy/publications/headline-economic-values-waste-final-report-2017
[32] The circular economy: an explainer
[33] Shifting Victoria to a Circular Economy
[34] https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/recycling/18p1061-too-good-to-waste-circular-economy-discussion-paper.pdf

1.3 Global landscape of circular economy

The concept of CE has garnered increasing attention worldwide, as societies seek sustainable solutions to pressing environmental and economic challenges. This heightened interest is underscored by intensification of trends, evidenced by data extracted from Google Scholars and Google Trends in Figure 3 and Figure 4, depicting a rising trajectory of research interest and public engagement with CE-related topics. Concurrently, **several national governments**, including the European Union, the United States, Australia, and others, **have taken steps to lead and promote CE practices**[35]. For example, The European Commission, in collaboration with Eurostat, has devised a monitoring framework aimed at tracking advancements towards a CE, concentrating on metrics pertaining to resource utilisation and waste management[36]. This reflects a growing recognition of the value the CE can generate, not only in terms of environmental conservation but also in fostering economic resilience, resource efficiency, and innovation. As countries grapple with the urgent need for sustainable development, CE emerges as a compelling framework for addressing complex societal and environmental challenges, while unlocking new opportunities for growth and prosperity.

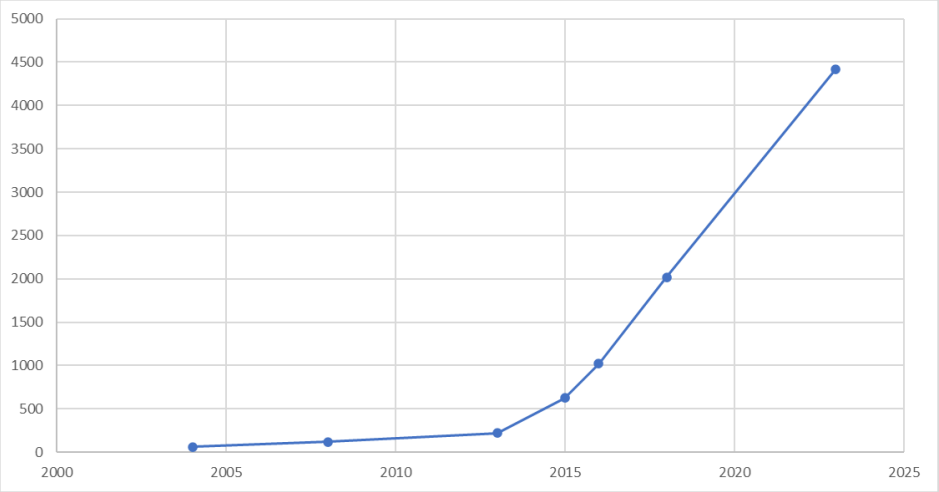

Figure 3: The number of published papers focusing on circular economy (Source: Google Scholar)

[35] Korhonen, J., Honkasalo, A. and Seppälä, J., 2018. Circular economy: the concept and its limitations. Ecological economics, 143, pp.37-46.

[36] https://www.eea.europa.eu/en/topics/in-depth/circular-economy?activeTab=e3e6b879-fef4-4a88-9436-5f0064698270

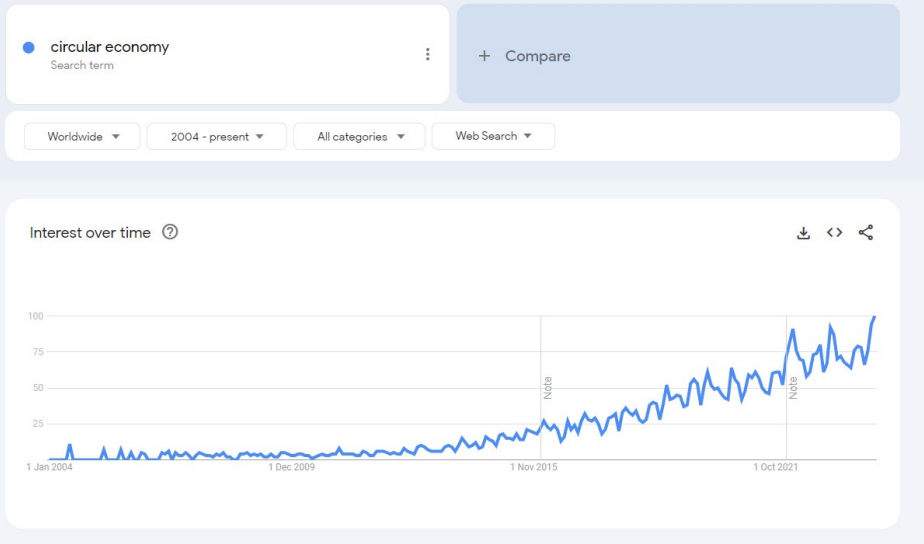

Figure 4: The relative popularity of circularity term (Source: Google Trend)

Since cities are responsible for 75% of resource use and waste[37] , local governments play a crucial role in driving transition to a CE within their communities[38]. With their proximity to citizens and businesses, local authorities are uniquely positioned to implement and facilitate CE practices 'on the ground'. They can enact policies and regulations that incentivise sustainable practices which go beyond just waste management: such as recycling, resource conservation, and eco innovation[39].

Some of the initiatives taken around the world are provided in Table 1.

Table 1: Circular economy case studies around the world

Country	Key Initiatives	Source
Netherlands	Introducing CircuLaw: Amsterdam's initiative with Dark Matter Labs to accelerate circular economy transition by translating complex legal frameworks into actionable insights for policymakers and industry stakeholders.	Ellen MacArthur Foundation
USA	The City of Phoenix and Arizona State University teamed up to drive circular economy transition, marked by pioneering research and impactful initiatives like Reimagine Phoenix and the Resource Innovation and Solutions Network.	Ellen MacArthur Foundation
Canada	Toronto's Circular Economy Procurement Framework uses municipal spending to drive economic growth, enhance social prosperity, and progress towards a zero-waste city. With CA$2.7 billion in annual contracts, the framework empowers suppliers integrating circular economy principles, in line with the city's Long Term Waste Management Strategy.	Ellen MacArthur Foundation
Spain	In Valladolid, the municipality funded 61 circular economy projects with €1 million. This spurred more applications in	The Organisation for Economic Co-

[37] Turcu, C. and Gillie, H., 2020. Governing the circular economy in the city: Local planning practice in London. Planning Practice & Research, 35(1), pp.62-85.
[38] Bolger, K. and Doyon, A., 2019. Circular cities: exploring local government strategies to facilitate a circular economy. European planning studies, 27(11), pp.2184-2205.
[39] Dagilienė, L., Varaniūtė, V. and Bruneckienė, J., 2021. Local governments' perspective on implementing the circular economy: A framework for future solutions. Journal of Cleaner Production, 310, p.127340.

	2019. Also, the Agency of Innovation and Economic Development developed a "Circular Economy Roadmap," co-organised "Circular Weekends" for networking, and launched a "Circular Lab" to foster entrepreneurship.	operation and Development (OECD)
Ireland	Empowered by the 2014 Local Government Reform Act, cities identify and support circular initiatives among businesses and civilians, bridging gaps between sectors. For example, Dublin City Council prioritises the circular economy in its Corporate Plan 2020-2024.	OECD
Vanuatu	In 2021, the Pacific island nation analysed circular economy opportunities and identified 17 strategies aimed at reducing waste flow from imported materials and improving resource efficiency across all material use, including domestically sourced materials.	United Nations Development Programme (UNDP)
Philippines	In Quezon City, the "Trash to Cash" program, a collaboration between local government and barangays (small administrative districts) incentivises residents to recycle by offering cash or points redeemable for prepaid credits on electricity, water, and other utility bills.	UNDP
Australia	Hillbrook Anglican School in Brisbane aims to achieve 90% circularity across its operations by 2030 and plans to integrate circular economy principles into the curriculum for years 7-10 by 2025.	Australian Circular Economy Hub

1.4 Circular economy initiatives in Australia

1.4.1 Federal Government

The Australian government recognises the importance of adopting a CE to respond to climate change, biodiversity loss, waste, and pollution. Australia's environment ministers have agreed to work with the private sector to achieve a CE by 2030; in addition, in February 2023 Federal Minister for the Environment and Water Tanya Plibersek established the **Circular Economy Ministerial Advisory Group (CEMAG)[40].**

CEMAG advises the Australian Government on transition towards a CE. The Group offers guidance to the Minister for the Environment and Water on opportunities associated with Australia's CE transition, identification of regulatory and commercial barriers, promotion of best practice initiatives, research and innovation needs, and effective measurement and communication of progress. Grounded in research and consultation, the Advisory Group adopts an evidence-based approach to its recommendations.

Achieving a CE is also supported by the **National Waste Policy** which provides a national framework for waste and resource recovery. It also highlights the importance of 'working together' and outlines roles and responsibilities for businesses, governments, communities, and individuals.

The policy outlines **five key principles for waste management**[41]:

1. Avoid waste.

[40] https://www.dcceew.gov.au/environment/protection/circular-economy/ministerial-advisory-group
[41] https://www.dcceew.gov.au/environment/protection/waste/how-we-manage-waste/national-waste-policy

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 **National Waste Action Plan** (2019) and its Annexure in 2022 also **drives implementation of seven targets**:

1. Regulate waste exports.
2. Reduce total waste generated by 10% per person by 2030.
3. Recover 80% of all waste by 2030.
4. Significantly increase use of recycled content by governments and industry.
5. Phase out problematic and unnecessary plastics by 2025.
6. Halve amount of organic waste sent to landfill by 2030.
7. Provide data to support better decisions.

Responsibility for minimising environmental and social impacts of products throughout their lifecycle lies with manufacturers, retailers, and consumers alike. Product stewardship in Australia emphasises shared responsibility among all stakeholders involved in the lifecycle of products to mitigate environmental and health impacts. This approach supports environmentally sound management practices, including recycling and reduced resource consumption, with schemes ranging from voluntary to mandatory as outlined in the Product Stewardship (Oil) Act 2000.

The Australian government accredits arrangements that effectively manage product impacts and provides financial support through the **National Product Stewardship Investment Fund**. The **Australian Packaging Covenant**, a partnership between governments and industry, focuses on sustainable packaging design, increased recycling rates, and litter reduction. Government administration of laws, such as Recycling and Waste Reduction Act 2020[42], Recycling and Waste Reduction (Product Stewardship – Accreditation of Voluntary Arrangements) Rules 2020[43], Product Stewardship (Televisions and Computers) Regulations 2011[44], Product Stewardship (Oil) Act 2000[45], aims to support transition to a CE, alongside ambitious waste management targets set at the national level. The focus is on adopting a common approach to policy and regulation, improving access to services, and enhancing industry capacity to achieve these targets.

The importance of CE initiatives in procurement has been also highlighted in the **Environmentally Sustainable Procurement Policy** developed by the Department of Climate Change, Energy, the Environment, and Water (DCCEEW)[46]. Circularity is one of the three focus areas that the policy aims to improve environmental sustainability in procurement.

[42] Federal Register of Legislation - Recycling and Waste Reduction Act 2020
[43] Federal Register of Legislation - Recycling and Waste Reduction (Product Stewardship—Accreditation of Voluntary Arrangements) Rules 2020
[44] Federal Register of Legislation - Product Stewardship (Televisions and Computers) Regulations 2011
[45] Federal Register of Legislation - Product Stewardship (Oil) Act 2000
[46] Environmentally Sustainable Procurement Policy (dcceew.gov.au)

1.4.2 NSW Government

The NSW Government is also working to respond to CE targets. The **NSW Circular Economy Policy Statement: Too Good to Waste** (2019)[47] aims to:

- Provide a common language and direction for a circular economy.
- Define the NSW Government's role in implementing CE principles.
- Embed CE principles in decision making, policies, strategies, and programs.
- Outline next steps.

The NSW Government is committed to advancing transition to a 'best practice' CE by incorporating CE principles into its 20-Year Waste Strategy highlighted in the **NSW Waste and Sustainable Materials Strategy**[48]**.** It is leading by example through its procurement practices, supporting local initiatives, and advocating for circularity at national and international levels. By integrating these strategies, the government aims to drive sustainable practices across sectors, reduce barriers to adoption, and promote broader environmental stewardship both locally and globally. The **NSW targets**[49]**, reflective of the National Waste Action Plan (2019),** are:

- Reduce total waste generated by 10% per person by 2030.
- Have an 80% average recovery rate from all waste streams by 2030.
- Significantly increase the use of recycled content by governments and industry.
- Phase out problematic and unnecessary plastics by 2025.
- Halve the amount of organic waste sent to landfill by 2030.
- Reduce litter by 60% by 2030 and plastics litter by 30% by 2025.
- Triple the plastics recycling rate by 2030.

In the **NSW Circular Economy Policy Statement (2019)**, the NSW government identified eight focus areas to guide action plans towards achieving a CE. One of these focus areas is sustainable procurement, which underscores the importance of procurement in driving transition to a CE. This also supports the significant role procurement practices play in stimulating both supply and demand sides of resources in the economy and means procurement decisions not only impact the immediate needs of organisations but also have long-term implications for the health of the environment and society.

1.4.3 NSW Local Governments

As highlighted in the **National Waste Action Plan** (2019) and its Annexure in 2022, local governments play a critical role in implementing the National Action Plan for managing waste and achieving sustainability goals. By investing in and supporting local-level initiatives, local governments not only contribute to broader national objectives but also adapt and respond to the unique environmental, social, and economic contexts of their communities.

[47] https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/response-to-china-national-sword/circular-economy-policy
[48] Waste and Sustainable Materials Strategy (nsw.gov.au)
[49] https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/strategic-direction-for-waste-in-nsw/waste-and-sustainable-materials-strategy

This localised approach ensures the national action plan is effectively implemented, leading to successful management and recovery of resources across the country. Below are some actions highlighted as the direct responsibility of local governments as lead or partner in implementing the National Waste Action Plan. For more information, please refer to the National Waste Action Plan (2019).

- 2.13 Align community education efforts to reduce food waste, to maximise impact and reduce confusion.
- 2.15 Undertake research to better understand contributing factors of household contamination of kerbside recycling collection, to inform future interventions.
- 6.3 Provide support to develop distributed infrastructure solutions to process organic waste, including composting infrastructure.
- 6.4 Deliver Food Organics and Garden Organics (FOGO) collection to households and businesses.

In addition, within the framework of the **NSW Circular Economy Policy Statement: Too Good to Waste** (2019), NSW councils are entrusted with a pivotal role in embedding the seven principles of CE that guide the NSW Government's decision-making and planning processes. One of the key principles, "Foster behaviour change through education and engagement," underscores the importance of councils engaging with communities and businesses. By effectively communicating the benefits of CE and demonstrating how circular activities can be implemented locally, councils play an essential role in fostering a broader understanding and adoption of these practices.

Moreover, in collaboration with the NSW Government, NSW councils contribute to protecting the state's robust recycling history by addressing current challenges. The policy also outlines the NSW Government commitment to facilitate transition to a 'best practice' CE by supporting innovative local actions and reducing market, regulatory, and governance barriers, thereby enhancing the ability of the private sector and local governments to adopt CE principles effectively.

Their role has been highlighted within the implications of **NSW Waste and Sustainable Materials Strategy**[50] as the NSW government actively looks to consult with NSW councils for implementation plans and successful transition towards CE.

Importantly, managing waste effectively plays a crucial role in reducing emissions, as highlighted in the **Net Zero Community Emissions Guide**[51] for NSW councils. According to the guide, emissions from waste represent one of the top five sources of emissions in NSW, accounting for 3% of the state's total emissions in 2020. Adopting the waste management practices not only promotes a CE where waste is minimised and materials are continually repurposed, but also helps mitigate climate change, supporting environmental sustainability goals at the community level. Thereby supporting the United Nation's Sustainable Development Goals, in particular SDG11 – Sustainable Cities and Communities, SDG12 - Responsible Consumptions and production, SDG13 – Climate Action[52].

[50] Waste and Sustainable Materials Strategy (nsw.gov.au)
[51] https://www.energy.nsw.gov.au/government-and-local-organisations/guides-and-helpful-advice-local/net-zero-emissions-guide-nsw
[52] https://www.undp.org/sustainable-development-goals

Aside from several examples of CE case studies provided by Australian Circular Economy Hub (ACE)[53], some examples of CE initiatives in NSW local councils are provided in Table 2.

Table 2. Circular economy initiatives in NSW local councils

Councils	Circular economy initiatives
Penrith City Council[54]	Several case studies including Food Organics Garden Organics (FOGO), Library, Civic Centre Refurbishment, Sustainable Roads, Bike drop-off and Repair Event
Hunter Joint Organisation[55]	Circular Economy Program including Circular Economy Roadmap 2022, Circular Economy City Scan, Material Flow Analysis.
Lake Macquarie City Council[56]	Circular Economy Policy and Framework and Circular Economy projects including Pearson Street Mall and Council's Landcare office, Low carbon road project, City Scan
The Southern Sydney Regional Organisation of Councils (SSROC)[57]	Circular Economy Think Tanks Series
The Western Parkland City[58]	Sydney Water: Unlocking the circular economy in the Western Parkland City
Bayside Council[59]	Circular economy waste solutions
Bega Valley Shire Council[60]	A community's vision for circularity in the Bega Valley

1.5 The role of procurement in circular economy

As a key function within organisations and governments, procurement decisions have significant implications for resource use, waste generation, and environmental impact.

According to the **NSW Government Procurement Policy Framework**[61] (Figure 5), the procurement process can be aligned within the three primary stages, each providing opportunities for government buyers to adhere to key policy requirements.

1. In the **planning stage**, the emphasis lies on understanding the procurement environment and the authority to procure. This may involve activities such as comprehending and defining business needs, formalising procurement strategies, conducting market assessments, and making decisions on evaluation and selection criteria.

[53] https://acehub.org.au/knowledge-hub/case-studies/all
[54] https://www.penrithcity.nsw.gov.au/waste-environment/sustainability/circular-economy
[55] https://www.hunterjo.com.au/projects/hunter-circular/
[56] https://www.lakemac.com.au/Our-Council/City-strategies-plans-and-reporting/Circular-Economy
[57] https://ssroc.nsw.gov.au/2020/08/10/circular-economy-think-tanks-series/
[58] https://www.sydneywater.com.au/content/dam/sydneywater/documents/WPC_unlocking-the-circular-economy.pdf
[59] https://www.bayside.nsw.gov.au/services/waste-recycling/circular-economy-waste-management#red-lid-organic-bins
[60] https://www.fnqroc.qld.gov.au/files/media/original/005/2f8/07e/1ba/Circular-Economy---V10-002---Low-Res.pdf
[61] https://www.treasury.nsw.gov.au/finance-resource/nsw-government-procurement-policy-framework

2. The **sourcing stage** entails identification and engagement of suppliers capable of delivering optimal value for money while upholding principles of probity and fair dealing. This may encompass supplier evaluation and selection, negotiation processes, and ultimately awarding the contract.

3. In the **management stage**, the focus shifts to effectively managing contracts and nurturing supplier relationships to yield the best outcomes for the agency and the government at large. This may entail activities such as performance monitoring and review, dispute resolution, and records management.

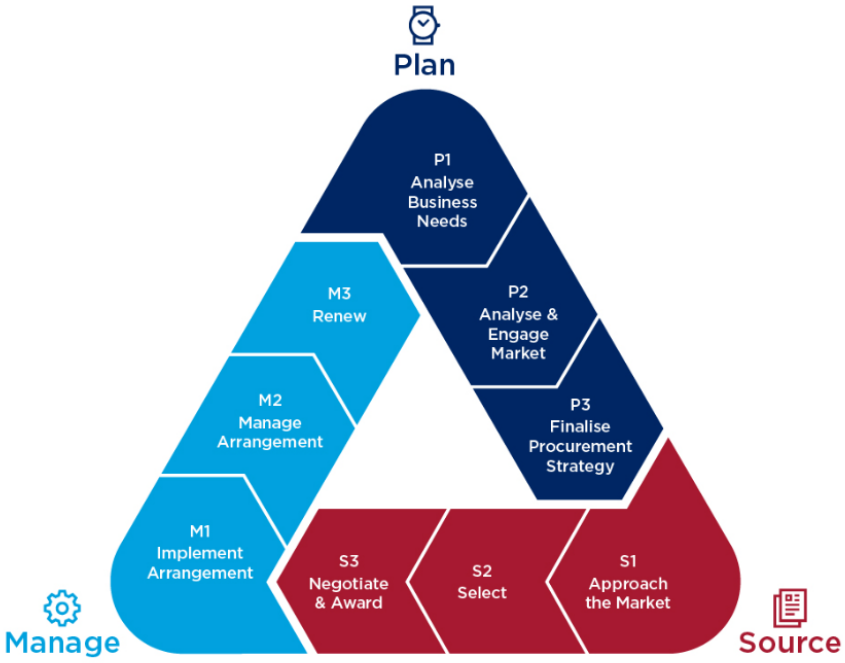

Figure 5. Best practice procurement (Source: NSW government)

By adopting CE practices in these three stages, government buyers can leverage their purchasing power to drive demand for products and services designed to promote CE.

The CE extends beyond merely managing waste through recycling, recovering, treating, and disposing. It begins by addressing the root of waste generation, emphasising the need to change behaviours to prevent waste from occurring (Figure 6). This shift underscores the pivotal role of procurement in determining how products/materials initially enter an organisation, highlighting its significant influence. Procurement departments play a critical role in deciding which products or materials are purchased and brought into organisations, directly impacting how these products will be managed at the end of their life cycle.

By **acting as a gatekeeper**, procurement departments have the authority to embed circularity principles directly into purchasing specifications via conducting 'stakeholder needs' assessments, ensuring needs of internal stakeholders are aligned with CE principles before approaching the supply market. Also, the procurement team can resist the purchase of virgin products and materials by leveraging existing options within the organisation to support sustainable practices and reduce overall waste.

Procurement departments can also **function as an innovator** within an organisation, actively tracking and identifying new circular products and materials existing in the supply market. By staying informed about sustainable advancements, procurement can introduce these innovative solutions to internal stakeholders, facilitating adoption of circular practices. Importantly, procurement departments can further enhance their role by collaborating with suppliers or partnering with other organisations that are experts in the CE. Through these partnerships, they can co-develop and promote solutions that enhance the availability and adoption of circular products. This collaborative approach not only broadens the impact of circular initiatives but also leverages external expertise to drive innovation and sustainable development within the organisation.

A true CE should not be led by waste teams, it needs to be led by finance and procurement teams who are delegated with procurement authority. It is critical for procurement officers to understand and implement the CE frameworks as they control what resources enter their organisations. The frameworks can support thoughtful decisions that use the expanded waste hierarchy which designs out waste and encourages different procurement models such as product as a service, shared resources, and reuse.

With the right procurement strategies in place, organisations can contribute significantly to the CE by promoting adoption of innovative and sustainable products, reducing their environmental footprint, and enhancing their overall competitiveness in the market[62]. The importance of circular economy through the procurement of sustainable products are highlighted and some case studies related to circular procurement can be found in Sustainable Procurement Guide prepared DCCEEW[63].

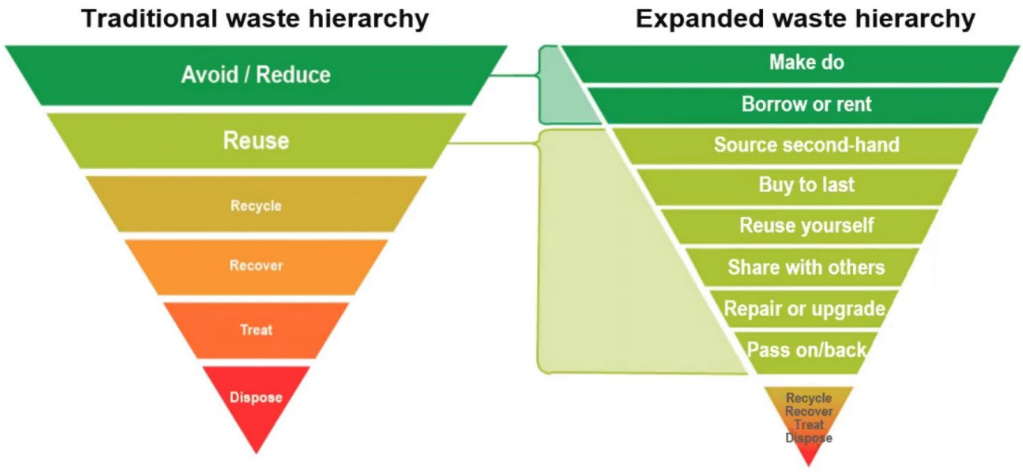

Figure 6. Traditional waste hierarchy vs Expanded waste hierarchy (Source: Department of Climate Change, Energy, the Environment and Water[64])

Table 3 provides some examples of procurement practices which can be applied in line with the expanded waste hierarchy.

[62] https://lgnsw.org.au/common/Uploaded%20files/PDF/esstam-sustainable-procurement-guide-30.05.17.pdf
[63] Sustainable Procurement Guide - DCCEEW
[64] https://www.dcceew.gov.au/environment/protection/publications/measuring-waste-prevention

Table 3. Examples of procurement practices in a circular economy model

Core activity	Examples of procurement practices
Make do	The procurement department can develop policies or guidelines to encourage employees to consider whether an item is truly necessary before placing an order, promoting a culture of conscious consumption within the organisation.
Borrow/rent	The procurement department can explore rental or leasing options for equipment or machinery needed for short-term projects.
Source second-hand	When procuring electronic devices, the procurement department can consider purchasing refurbished or second-hand equipment from reputable suppliers.
Buy to last	The procurement department can prioritise purchase of products designed for durability and repairability.
Reuse yourself	Instead of purchasing new office furniture, the procurement department can assess existing furniture for repair or refurbishment.
Share with others	The procurement department can explore sharing initiatives with other organisations or internal departments. For instance, sharing specialised equipment or tools among departments reduces the need for duplicate purchases and maximises resource utilisation.
Repair/upgrade	When procuring vehicles for the company fleet, the procurement department can prioritise models with readily available spare parts and service support.
Pass on or back	The procurement department can collaborate with suppliers to return items in need of repair, resale, or repurposing rather than discarding them.

2 Insights from NSW Local Governments

For this study, a **survey via questionnaire** was conducted, targeting NSW councils. The questionnaire was distributed to councils and remained open for one month (June to July 2023); 69 respondents from 49 councils completed the questionnaire, providing valuable insights into their practices and perspectives regarding the CE. Survey responses were then analysed to identify common trends, challenges, and opportunities related to CE initiatives within NSW local governments.

2.1 Descriptive analysis

The 69 survey **respondents' position titles** (Figure 7) revealed a diverse distribution across various roles within NSW councils. The largest representation came from the **sustainability** sector (14 respondents) followed by participants from **procurement/finance** departments (11 respondents) and **waste** sector (10 respondents). However, 28 respondents did not specify their position titles.

A broad spectrum of stakeholders engaged in the survey, ranging from governance officials to sustainability advocates and waste management professionals. Such diversity in participation reflects the multi-faceted nature of CE initiatives within NSW local governments and underscores the importance of inclusive engagement across various departments and roles.

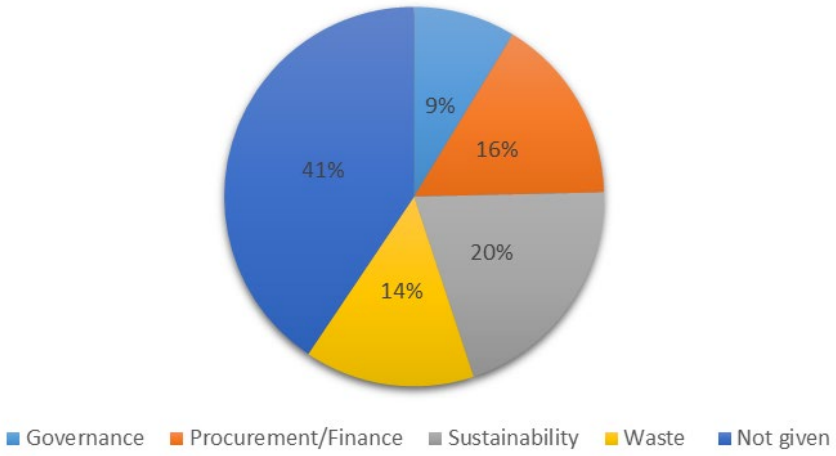

Figure 7. Respondents' position titles

The descriptive analysis of **respondents' knowledge of CE** (Figure 8) revealed a significant portion of respondents (56 respondents, 81%) demonstrated considerable knowledge of CE, which enhances the reliability of the results.

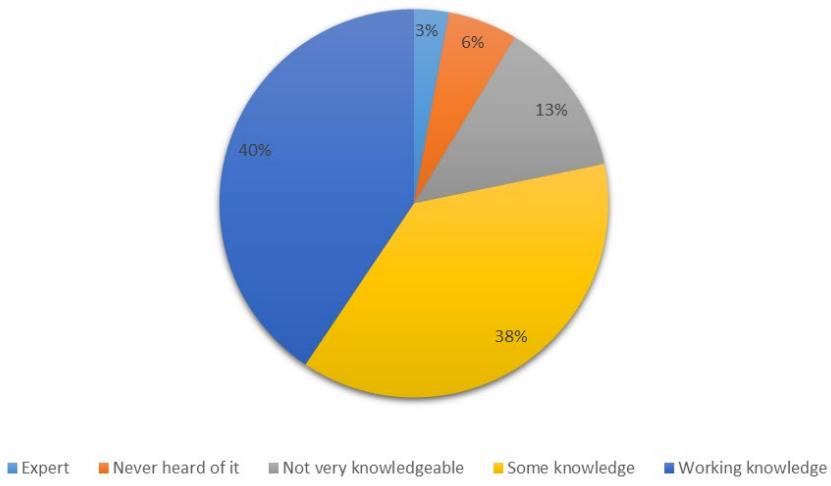

Figure 8. Respondents' knowledge of circular economy

2.2 Overview of circular economy in Australian Local Governments

Based on survey responses regarding whether their council has a **written position on CE** (Figure 9), several insights can be drawn. Firstly, a proportion of respondents (26 respondents), indicated their council does have a written position on CE. These councils have addressed CE principles in various places such as waste strategy/plan, procurement policy and/or procedures or guidelines, community strategic plan, and sustainability strategy/policy. This suggests a proactive approach by these councils in formally acknowledging and committing to CE principles and practices.

Furthermore, **nine respondents reported their council is working towards** developing a written position on CE. This indicates a growing recognition of the importance of CE concepts among councils, with efforts underway to formalise their stance and integrate CE considerations into their policies and strategies.

On the other hand, **12 respondents stated their council does not have a written position** on CE. This suggests a potential gap or opportunity for improvement in these councils' engagement with CE initiatives. It may indicate a need for increased awareness, capacity-building, or strategic planning to incorporate CE principles into their organisational framework. Additionally, two respondents expressed uncertainty whether their council has a written position on CE. This ambiguity may highlight the need for clearer communication and transparency within these councils regarding commitment to CE principles.

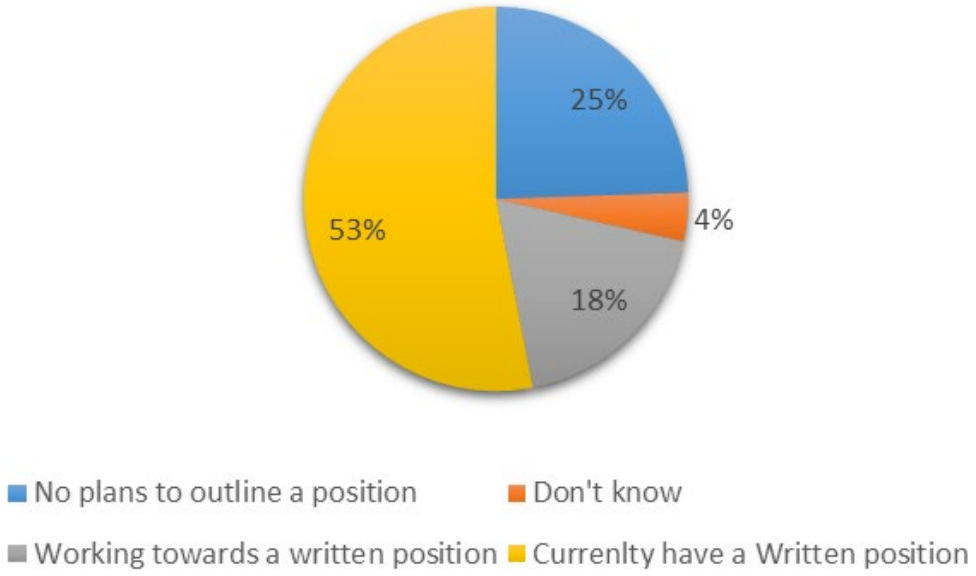

Figure 9. Written position on circular economy

Survey responses regarding whether **their council has been involved in any CE initiatives** to date (Figure 10) revealed various levels of engagement among respondents. A substantial proportion of respondents, 57%, 28 respondents (23 with a number of initiatives and 5 with one), indicated their council has been actively engaged in at least one CE initiative.

Furthermore, three respondents stated their council is planning to implement one or more CE initiative in the future. This suggests a commitment by these councils to proactively explore and implement various projects and programs aligned with CE principles. However, 18 respondents indicated their council has not been involved in any CE initiatives, either in the past or planned for the future. This highlights an opportunity for councils to explore the potential benefits of CE initiatives. Some examples are provided in the next section.

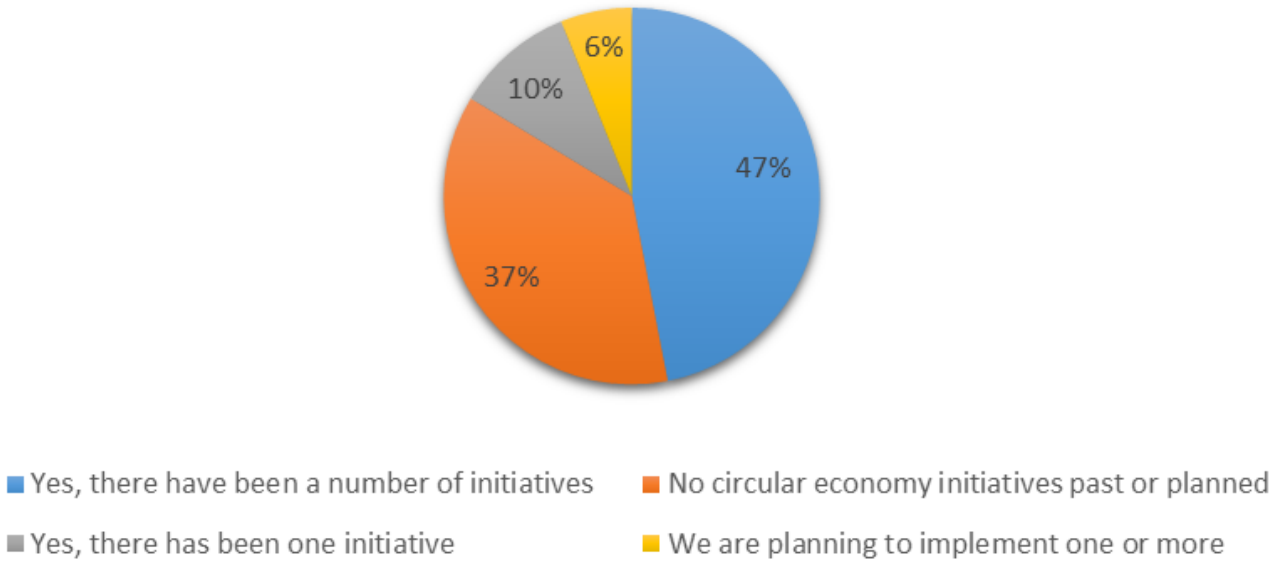

Figure 10. Circular economy initiatives

2.3 Examples of circular economy initiatives in NSW Local Governments

Many activities have been initiated in relation to CE, reflecting a growing recognition of its importance in promoting sustainability and resource efficiency. However, it's crucial for organisations to establish well-defined initiatives to ensure efforts are purposeful and impactful. **Concrete initiatives provide organisations with a 'roadmap for action'**, enabling them to set objectives, track progress, and measure outcomes effectively. By delineating specific initiatives, organisations can better understand the scope of their efforts and potential benefits they can achieve through CE practices.

The **90 CE initiatives provided by councils in the survey** fell into three main categories (Table 4).

1: Approximately **24%** of the initiatives were **'strategic-level' practices**. These included:

- Community and staff training/awareness programs.
- Grants offered for CE projects.
- Establishment of positions on reuse economy.
- Inclusion in regional plans.
- Development of CE strategies or roadmaps.
- Conducting staff surveys to gauge awareness and engagement.

Table 4. Examples of Councils' initiatives provided in the survey.

Category	Initiatives
Strategic-Level	Community and staff training/awareness programs - Grants offered for circular economy projects - Establishment of positions on reuse economy - Inclusion in regional plans - Development of circular economy strategies or roadmaps - Conducting staff surveys to gauge awareness and engagement - Encouraging recycled content purchases
Waste Prevention	Coffee cup exchange programs - Mulch reuse - Recovery and reuse of waste materials - Promotion of reusable cups - Upcycling banners - Organising community events such as swaps - Repair of mobile garbage bins - Facilitating the rehoming of items instead of landfill disposal
Waste Diversion	Community recycling programs targeting materials such as textiles, mattresses, construction waste, mobile phones, polystyrene, and printing cartridges - Recycling uniforms/textiles - Recycling mattresses - Recycling construction waste - Recycling mobile phones - Recycling polystyrene - Recycling printing cartridges

2: Around **38%** of CE initiatives related to **waste prevention practices**, based on the expanded waste hierarchy outlined earlier in this report. Waste prevention practices can be defined:

"Any deliberate action taken that, at a particular time, stops an item, component, or material from entering a formal or informal waste management facility or system[65] (framework for understanding, measuring & communicating waste prevention, DCCEEW, page 6)."

Examples of such initiatives included:

- Coffee cup exchange programs.

[65] framework-waste-prevention.pdf (dcceew.gov.au)

- Mulch reuse.
- Recovery and reuse of waste materials.
- Promotion of reusable cups.
- Upcycling banners.
- Organising community events such as swaps.
- Repair of mobile garbage bins.
- Facilitating rehoming of items instead of landfill disposal.

3: Approximately **46%** of initiatives focused on **waste diversion practices**. These initiatives occur after waste is generated and aim to recycle, recover, or dispose of materials in environmentally responsible ways. Examples of waste diversion initiatives include community recycling programs targeting materials such as textiles, mattresses, construction waste, mobile phones, polystyrene, and printing cartridges.

These insights highlight the diverse range of CE initiatives undertaken by local councils, spanning strategic planning efforts, waste prevention, and waste diversion initiatives. However, it's notable that **a significant portion of the initiatives** seem to be **focused on waste diversion and recycling programs**. This suggests a prevailing perception among councils that CE primarily revolves around recycling and waste management. Hence, there is a need to enhance awareness and understanding among councils regarding the broader scope of CE practices, particularly emphasising waste prevention activities to maximise resource efficiency and minimise environmental impact. This highlights an opportunity for further education and capacity-building efforts, especially in procurement to foster a more holistic approach to CE within local government initiatives.

2.4 Challenges implementing circular economy in NSW Local Governments

Transitioning to a CE holds immense potential for LG, offering numerous opportunities and benefits such as reduced environmental impact, cost savings, job creation, and enhanced resource efficiency. Despite these potential benefits, several challenges may deter councils from fully embracing CE principles. According to the survey, insights into those challenges within local government reveal several significant barriers.

Nine barriers were identified, with varying frequencies depicted in Table 5. Lack of staff knowledge or expertise, cost to implement, insufficient leadership support, insufficient case studies to demonstrate value, and supply chain issues, account for 90% of those mentioned by respondents (Table 5).

Table 5. Barriers of adopting circular economy initiatives in NSW Local Governments

	Barriers	Frequency	Cumulative %
1	Lack of staff knowledge or expertise	36	31%
2	Cost to implement	24	51%
3	Insufficient leadership support	16	64%

4	**Insufficient case studies to demonstrate value**	**15**	**77%**
5	**Supply chain issues**	**15**	**90%**
6	Lack of political support	6	95%
7	Not included in key Council strategies/policies	3	97%
8	Insufficient resources	2	99%
9	Lack of legal advice	1	100%

Lack of staff knowledge or expertise (31%) poses a substantial barrier to CE implementation, indicating a potential gap in skills and understanding among council staff. Without adequate knowledge and expertise in CE principles and practices, councils may struggle to develop and execute effective strategies, hindering progress towards sustainable and circular initiatives. Investing in training and capacity-building programs can help address this barrier by equipping staff with necessary skills and knowledge to navigate the complexities of CE implementation and drive organisational change.

Cost to implement (20%) – despite many examples that CE initiatives yield significant cost reduction (noted earlier in section 2) – emerged as another significant barrier, underscoring the financial challenges associated with transitioning to CE. The high upfront costs of implementing CE initiatives, such as investing in infrastructure upgrades or adopting innovative technologies, may deter councils, particularly those with limited budgets or competing priorities. Overcoming this barrier may require exploring alternative funding sources, prioritising initiatives with a high return on investment, and fostering partnerships with external stakeholders to share costs and resources. But while CE practices might initially appear more expensive than traditional methods, it's crucial for organisations to recognise economic criteria are not the only factors to consider. To truly embrace sustainability, organisations need to evaluate their impact through a broader lens that includes social and environmental key performance indicators (KPIs). This balanced approach goes beyond mere cost considerations to integrate the triple bottom line — people, planet, and profit — into decision-making processes. By weighing these three factors, organisations can make informed choices that align with long-term sustainability goals, ensuring they contribute positively to the environment and society while still maintaining economic viability.

Insufficient leadership support (13%) represents another important barrier to CE implementation, highlighting the importance of strong leadership buy-in and commitment. Without endorsement and support of senior management, councils may struggle to secure the necessary resources, promote stakeholder engagement, and drive organisational change towards a CE model. Cultivating a culture of sustainability and innovation at all levels of the organisation and advocating for leadership buy-in can help address this barrier and mobilise support for CE initiatives.

Lack of case studies to demonstrate value (13%) of CE initiatives presents another obstacle, indicating a need for tangible evidence of CE benefits. Councils may encounter difficulties building a compelling business case or securing stakeholder buy-in without concrete examples of successful

CE projects and their economic, environmental, and social impacts. Generating/exploring and disseminating case studies showcasing positive outcomes of CE initiatives can help overcome this barrier by providing councils with practical examples to inspire action and build confidence in the potential benefits of CE practices.

Supply chain issues (13%) represent a significant barrier to CE implementation, highlighting complexities and dependencies inherent in procuring sustainable and circular products. Challenges such as limited availability of recycled products, supplier unwillingness toward embedding CE principles, price volatility, or disruptions in the supply chain may hinder councils' efforts to transition towards circular procurement practices. Addressing supply chain issues may require engaging with suppliers, fostering collaboration along the supply chain, and advocating for policy changes to incentivise the adoption of circular practices by suppliers.

Addressing the barriers to CE implementation within local government **requires a comprehensive approach** that tackles issues related to knowledge and expertise, financial resources, leadership support, availability of case studies, and supply chain dynamics. By proactively addressing these barriers, councils can overcome obstacles and pave the way for successful adoption and implementation of CE practices, leading to more sustainable and resilient communities.

2.5 Status of circular economy in procurement process of NSW Local Governments

Procurement plays a pivotal role in advancing the CE agenda within local councils, serving as a powerful lever for driving sustainable and resource-efficient practices across supply chains. As the primary interface between councils and external suppliers, **procurement function has unique role to close the loop of a CE model**.

By integrating CE principles into procurement processes, councils can leverage their purchasing power to enforce CE principles over their supply chains. However, analysing the survey results revealed a notable disparity: **only 12 of 49 councils explicitly indicated the presence of a written position on the CE within their procurement policy and/or procedures or guidelines**. This finding underscores a significant gap in integrating CE principles into procurement practices across local councils. It also may suggest a potential lack of awareness or acknowledgment regarding inclusion of CE considerations within procurement functions.

The survey **results also revealed a limited number of CE initiatives directly linked to procurement practices** which are highly beneficial and deserve broader adoption, including development of a regional sustainable procurement plan in partnership with ISJO, public procurement discussions, integration of recycled glass in road re-sheeting contracts, procurement of recycled paper, efforts to incorporate sustainability criteria into procurement project scopes, and implementation of material flow analysis.

This **lack of explicit CE initiatives within procurement highlights a significant gap in integration of procurement processes** into CE strategies among surveyed councils. While these findings may stem from respondents' lack of familiarity with procurement processes, they nevertheless underscore a broader knowledge gap among council employees involved in CE initiatives regarding potential contributions of procurement practices.

The survey results also indicated a significant **supply chain challenge**. While lack of staff knowledge or expertise, cost to implement, insufficient leadership support, and insufficient case studies to demonstrate value can indirectly impact CE initiatives in procurement practices, supply chain issues directly implicate procurement practices. The prominence of supply chain issues as a barrier highlights a crucial aspect: the procurement team's limited involvement in the CE process and insufficient embedding of CE principles within procurement practices. This suggests a significant gap in recognition of procurement's potential role in advancing CE principles and emphasises the need for greater integration of CE principles into procurement function.

2.6 Recommendations to overcome circular economy barriers for NSW Local Governments

In this section recommendations for each of the top 5 barriers are outlined and clarified separately. To identify in which steps of the procurement process each recommendation falls, we adopted the NSW Government 'best practice' approach to procurement[66] based on 3 stages of 'Plan – Source – Manage' and its 9 steps (shown earlier in Figure 5, section 2.5).

2.6.1 Barrier 1: Lack of staff knowledge or expertise

2.6.1.1 Recommendation 1: Developing comprehensive training programs

In the planning (P1, P2, P3), sourcing (S1, S2, S3), and managing (M1, M2, M3) stages, a training program tailored to address the challenge of lack of staff knowledge or expertise can be a vital solution for procurement departments.

- **Planning (P1, P2, P3) stage**
  - Needs assessment: focus of training programs would be on procurement related staff (whether in centre-led, centralised, or decentralised systems). This would educate staff on how to embed CE principles in needs assessment steps such as exploring existing products and services to avoid the need for buying new ones.
- **Sourcing (S1, S2, S3) stage**
  - Supplier evaluation and selection: training materials on how to develop and assign weights to CE-related criteria during supplier evaluation and selection processes to influence the outcome, such as % of recycled content in the product.
- **Managing (M1, M2, M3) stage**
  - Supplier performance monitoring: educate staff to monitor supplier performance against CE targets and sustainability commitments outlined in the contract. For example, establish mechanisms for tracking and reporting key performance indicators related to waste reduction, resource efficiency, and circular product design.

To **optimise the value of these training programs**, the following **action plans** can be implemented:

- **Internal training and development programs**: Establish training and development programs specifically tailored to enhance staff knowledge and expertise in CE principles and practices.

[66] https://www.info.buy.nsw.gov.au/buyer-guidance/get-started/best-practice-procurement

- **Knowledge sharing platforms**: Create internal knowledge sharing platforms or forums where staff exchange insights, best practices, and lessons learned related to CE initiatives. Encourage collaboration and participation to foster a culture of continuous learning and improvement.
- **External partnerships and collaboration**: Forge partnerships with external consultants, industry experts, or academic institutions that specialise in CE and sustainable procurement. Leverage their expertise to provide training sessions, workshops, or mentorship programs for procurement staff.
- **Incentive programs**: Implement incentive programs to motivate staff to enhance their knowledge and expertise in CE practices. Recognise and reward individuals or teams that demonstrate a commitment to integrating CE principles into procurement processes.
- **Continuous monitoring and evaluation**: Regularly monitor and evaluate staff performance in terms of their understanding and application of CE principles. Provide constructive feedback and support to facilitate ongoing improvement and skills development.

By implementing these action plans – and providing more examples such as shown in Table 2 (section 2.5) – procurement departments can effectively address the challenge of lack of staff knowledge or expertise and empower staff to play a more proactive role in advancing CE initiatives within the organisation.

2.6.1.2 Recommendation 2: Engagement of key stakeholders in the evaluation panel

In the sourcing stage (S1, S2), **establish an assessment or evaluation panel comprising stakeholders with expertise in CE principles and sustainability**. By involving stakeholders from various departments and disciplines, local governments can leverage their expertise to identify opportunities for circularity and develop evaluation criteria that prioritise suppliers offering sustainable and circular solutions. This collaborative approach can also foster buy-in and ensures the procurement process reflects local governments' commitment to sustainability and circularity.

2.6.2 Barrier 2: Cost to implement

2.6.2.1 Recommendation 3: Life cycle assessment integration

In sourcing (S2) stage, procurement staff can **incorporate life cycle assessment (LCA)[67],[68] methodologies to evaluate environmental impacts** of solutions provided by tenderers. By conducting LCAs, local governments can determine potential benefits of applying CE initiatives related to each tenderer, such as reduced resource consumption, lower emissions, and increased durability of products. To effectively present a case for approval of an initiative, it is crucial to clearly articulate these benefits in a way that connects them to broader organisational goals. This approach allows decision-makers to make informed choices that align with CE principles and optimise value throughout the product lifecycle.

[67] https://www.ellenmacarthurfoundation.org/life-cycle-assessment-for-the-circular-economy
[68] https://icca-chem.org/wp-content/uploads/2021/05/ICCA_Avoiding-GHG-Emissions_Life-Cycle-Assessment-of-Circular-Systems_Guide-and-Case-Studies.pdf

2.6.2.2 Recommendation 4: Cost monitoring and analysis

In the managing (M2) stage, procurement staff can **implement robust cost monitoring and analysis mechanisms to track actual costs incurred during the contract life cycle**. By measuring costs in the actual process, local governments can effectively monitor how costs progress over the length of the contract. This proactive approach enables procurement teams to identify cost-saving opportunities, address budgetary concerns, and ensure CE initiatives remain financially viable throughout the contract period.

2.6.3 Barrier 3: Insufficient leadership support

2.6.3.1 Recommendation 5: Executive training programs

In the planning (P3) stage, **implementing specialised training programs for senior leadership** can be effective in fostering understanding and support for a CE model. These programs can cover topics such as the business case for CE, regulatory requirements, and successful case studies from other organisations. By equipping executives with the knowledge and tools to champion CE initiatives, procurement departments can secure stronger leadership backing for CE-related projects.

2.6.3.2 Recommendation 6: Incorporating circular economy goals into strategic plans

In the planning (P3) stage, procurement departments can work closely with executive leadership to **ensure CE goals are integrated into the organisation's strategic plans and objectives**. By aligning CE principles with broader organisational priorities, such as sustainability and cost efficiency, procurement teams can demonstrate the strategic importance of CE to leadership. This alignment can help garner greater support and resources for CE initiatives at the highest levels of the organisation.

2.6.3.3 Recommendation 7: Establishing a circular economy steering committee

In the planning (P3) stage, procurement departments can propose **formation of a dedicated CE steering committee** comprised of key executives and stakeholders from various departments. This committee can be tasked with overseeing and guiding CE initiatives across procurement processes, providing strategic direction, and ensuring alignment with overall sustainability goals. By involving leadership directly in the decision-making process, procurement teams can secure their commitment and active involvement in advancing CE efforts. Thereby supporting the council's Environmental, social and governance (ESG) strategy where in place.

2.6.3.4 Recommendation 8: Executive mentoring and coaching

In the planning (P1, P2, P3), sourcing (S1, S2, S3), and managing (M1, M2, M3) stages, **pairing senior executives with experienced mentors or coaches knowledgeable about CE** can be valuable in fostering greater understanding and advocacy for CE principles. These mentors can provide personalised guidance, share best practices, and offer insights into the strategic importance of CE within the councils. By providing leadership with individualised support and mentorship, procurement departments can cultivate champions for CE at all levels of the organisation, driving greater leadership engagement and support.

2.6.3.5 Recommendation 9: Key performance indicators and reporting

In the managing (M2) stage, **implementing robust performance metrics and reporting mechanisms** related to CE can help demonstrate tangible benefits and outcomes of CE initiatives

to leadership. Procurement departments can develop KPIs aligned with CE objectives, such as waste reduction targets, cost savings from CE practices, and environmental impact assessments. Regular reporting on these metrics can provide leadership with visibility into the progress and effectiveness of CE initiatives, reinforcing their support and investment in ongoing efforts. Some KPIs to measure CE performance of suppliers may include:

- **Percentage of recycled content:**
  - Measure the proportion of recycled materials used in products supplied.
- **Reduction in material usage:**
  - Track the reduction in virgin materials used by the supplier over time.
- **Durability and lifespan of products:**
  - Track the average lifespan of products supplied, aiming for improvements over time.
- **Percentage of products designed for disassembly:**
  - Measure the proportion of products designed to be easily disassembled for repair or recycling.
- **Rate of return and reuse:**
  - Monitor the percentage of products or materials returned for reuse, repair, or refurbishment.

It should be noted that the KPIs should be generated according to the organisation's CE goals.

2.6.4 Barrier 4: Insufficient case studies to demonstrate value

2.6.4.1 Recommendation 10: Leveraging case studies

In the planning (P1) stage, procurement departments can **take the lead in identifying case studies that showcase successful CE initiatives and their tangible benefits**. These should highlight specific projects or programs implemented within the councils or in similar contexts, detailing the objectives, strategies, implementation process, and outcomes achieved. By documenting real-world examples of CE 'in action', procurement teams can provide concrete evidence of the value and impact of adopting CE practices, making a compelling case for further investment and adoption.

2.6.4.2 Recommendation 11: Knowledge sharing and collaboration

In the planning (P1, P2, P3), sourcing (S1, S2, S3), and managing (M1, M2, M3) stages, **encouraging knowledge sharing and collaboration among peer councils**, industry associations, and external partners can facilitate exchange of 'best practices' and 'lessons learned' in CE implementation in local governments. Procurement departments can organise forums, workshops, or webinars where stakeholders can share their experiences, challenges, and successes related to CE initiatives. By fostering a collaborative environment for learning and sharing, procurement teams can access a wealth of case studies and practical insights that can be adapted and applied within their own council.

2.6.4.3 Recommendation 12: Promoting internal success stories

In the managing (M3) stage, procurement departments can proactively **identify and showcase internal success stories where CE principles have been successfully applied** to achieve positive outcomes in procurement function. By highlighting these success stories through internal communications channels such as newsletters, intranet portals, or staff meetings, procurement

teams can raise awareness and build momentum around the benefits of CE practices. Additionally, featuring these success stories in presentations to senior leadership or decision-makers can help garner support and buy-in for further CE initiatives by demonstrating their potential to drive positive results and create value for the organisation.

2.6.4.4 Recommendation 13: Market research for sustainable/circular solutions

In the planning (P2) stage, **expand the market analysis beyond traditional factors to include availability of sustainable and circular products**. Identify suppliers offering innovative solutions that align with CE principles, such as products designed for durability, repairability, and recyclability.

2.6.4.5 Recommendation 14: Benchmarking against peers

In the planning (P1, P2, P3), sourcing (S1, S2, S3), and managing (M1, M2, M3) stages, **engaging in benchmarking activities with peer councils or similar entities** can help procurement departments identify leading practices and benchmarks in CE implementation. By comparing their performance and progress against industry peers or best-in-class organisations, procurement teams can gain valuable insights into the effectiveness of their CE initiatives and identify areas for improvement.

2.6.4.6 Barrier 5: Supply chain issues

2.6.4.7 Recommendation 15: Supplier engagement and education

In the managing (M1) stage, procurement departments can **actively engage with suppliers to raise awareness about CE principles** and encourage their adoption throughout their supply chains. This can involve organising workshops, training sessions, or webinars to educate suppliers on the benefits of having a CE business model, such as resource efficiency, waste reduction, and cost savings. By fostering a collaborative approach and providing guidance on integrating CE considerations into their operations, procurement teams can help suppliers identify opportunities for innovation and improvement in their products and processes.

2.6.4.8 Recommendation 16: Supply chain transparency and traceability

In the managing (M2) stage, enhancing transparency and traceability in the supply chain can help identify and address potential barriers to CE implementation. Procurement departments can **leverage smart technologies to track movement of materials and products** throughout supply chains. By gaining insights into the origin, composition, and lifecycle of products, procurement teams can identify areas for improvement and work collaboratively with suppliers to optimise resource use and minimise waste generation.

2.6.4.9 Recommendation 17: Contract clauses for circularity

In the sourcing (S3) stage, negotiate to **incorporate contract clauses related to CE principles** into procurement contracts. These clauses should incentivise suppliers to design and deliver products with circularity in mind. Suppliers may also agree to accept returns from organisations for recycling, reusing, or refurbishing products, thereby closing the loop in the supply chain, and contributing to resource conservation.

2.6.4.10 Recommendation 18: Supplier performance evaluation criteria

In the sourcing (S1, S2) stage, **incorporating CE criteria into supplier performance evaluation** frameworks can incentivise commitment to CE principles. Procurement departments can revise their supplier evaluation criteria to include indicators such as use of recycled materials, eco-

friendly packaging, energy efficiency measures, and adherence to sustainable production practices. By aligning supplier performance expectations with CE principles, procurement teams can influence supplier behaviour and drive positive changes across supply chains.

2.6.4.11 Recommendation 19: Supplier Code of Conduct:

In the sourcing (S1) stage, **establishing a supplier code of conduct** including provisions related to CE principles can help set clear expectations and standards for suppliers to adhere to those principles. Procurement departments (individually or collectively) can develop and communicate a set of guidelines or requirements outlining suppliers' responsibilities in CE practices.

These recommendations are summed in Table 6 below. It is important to note that, the list of recommendations from 1 to 19 is presented for informational purposes and **does not reflect a ranking or prioritization of their importance**. Each recommendation stands as an individual consideration, without an implied order of execution or priority. In addition, some **recommendations may indirectly influence more than one barrier**.

Table 6. List of recommendations to overcome CE barriers

No	Recommendations	NSW Government Procurement Policy Framework			Top five barriers				
		Plan	Source	Manage	Lack of staff knowledge or expertise	Cost to implement	Insufficient leadership support	Insufficient case studies to demonstrate value	Supply chain issues
1	Developing comprehensive training programs	P1,2,3	S1,2,3	M1,2,3	✓				
2	Engagement of key stakeholders in the evaluation panel		S1,2		✓				
3	Life cycle assessment integration		S2			✓			
4	Cost monitoring and analysis			M2		✓			
5	Executive training programs	P3					✓		
6	Incorporating circular economy goals into strategic plans	P3					✓		
7	Establishing a circular economy steering committee	P3					✓		
8	Executive mentoring and coaching	P1,2,3	S1,2,3	M1,2,3			✓		
9	Key performance indicators and reporting			M2			✓		
10	Leveraging case studies	P1						✓	
11	Knowledge sharing and collaboration	P1,2,3	S1,2,3	M1,2,3				✓	
12	Promoting internal success stories			M3				✓	
13	Market research for sustainable/circular solutions	P2						✓	
14	Benchmarking against peers	P1,2,3	S1,2,3	M1,2,3				✓	
15	Supplier engagement and education			M1					✓
16	Supply chain transparency and traceability			M2					✓
17	Contract clauses for circularity		S3						✓
18	Supplier performance evaluation criteria		S1,2						✓
19	Supplier Code of Conduct		S1						✓

3 Conclusion

The **integration of CE principles into procurement processes** holds significant importance for local governments, offering **opportunities to enhance sustainability, drive innovation, and achieve long-term economic and environmental benefits**.

We have provided an overview of the CE landscape globally, contextualising it within the Australian context, particularly within the state of NSW. Data from a survey of NSW local governments provided **insights into the current status of CE initiatives in procurement practices**, highlighting examples of initiatives undertaken by local councils.

We also identified **challenges** faced by NSW local governments embedding CE principles into their operations, including insufficient staff knowledge, cost barriers, insufficient leadership support and case studies, and supply chain issues.

To address these challenges, we offered **recommendations** such as training programs, supplier engagement, and industry collaboration that procurement departments in local governments can apply to overcome those challenges. By addressing these challenges and implementing these recommendations, local governments in NSW can further advance their efforts towards integrating CE principles into procurement processes, contributing to the transition towards a more sustainable and CE.

2.6.4.12 How can LGP help?

2.6.4.13 Introduction to LGP's role in circular economy

Local Government Procurement (LGP)[69] plays a leading role within NSW local government as Australia's only **sustainable procurement consultancy** solely dedicated to local government, including CE initiatives. Through a multi-faceted approach, LGP actively engages with local councils by organising informative webinars, facilitating networking sessions, and providing guidance. By leveraging the extensive experience of its staff and remaining at the forefront of emerging trends and developments in sustainable procurement, LGP ensures it can effectively disseminate this knowledge to councils, empowering them to make informed decisions and progress on their sustainability journey.

One cornerstone of LGP's commitment to sustainable procurement is its "sustainable choice" section, which serves as a comprehensive resource hub. Here, local councils can access a wealth of materials, including guidelines, templates, and instructions, designed to guide and support their efforts in adopting sustainable procurement practices.

In addition to providing resources, LGP's team of experts actively participates in various working groups, such as the **Australian Circular Economy (ACE) Hub Procurement Working Group**, where they contribute insights and expertise to advance CE initiatives. Furthermore, LGP's consultancy projects represent a tangible demonstration of its dedication to driving sustainable procurement practices. Through tailored consultancy services, LGP collaborates with local governments to integrate CE principles into their procurement processes effectively.

[69] https://lgp.org.au/

By leveraging its expertise and experience, LGP helps local councils navigate the complexities of sustainable procurement and unlock the benefits of a CE.

It is important to note that, by being **prescribed[70] under s55 of the Local Government Act 1993 (NSW)**, LGP's commitment to sustainable procurement extends beyond provision of resources and participation in working groups. Central to LGP's mission is ensuring local councils possess a comprehensive understanding of how various activities, including CE initiatives, contribute to the overarching goals of sustainable procurement.

2.6.5 Specific services and support offered by LGP

The following **Sustainable Choice Services** can be available as part of our consulting services.

- Annual Sustainable Procurement Scorecard and performance report
- Training
- ISO 20400 gap analysis
- Bespoke workshops
- Modern slavery toolkit
- Modern slavery risk assessment
- Social procurement toolkit
- Strategic sustainable procurement review and development
- Building sustainable procurement into supplier and user awareness programs

Specifically, LGP employs a structured methodology to provide consultancy advice, leveraging a comprehensive framework tailored to the needs of local governments. Based on the framework provided in Figure 11, our consultants will identify various aspects of your procurement and CE principles and assess the current procurement practices against CE objectives. Then, through detailed gap analysis, we identify areas for improvement and recommend strategies to enhance performance in adopting CE principles. Whether it involves the development of new policies or the integration of innovative technologies, our consultants provide tailored recommendations to align procurement practices with CE goals.

Additionally, we offer guidance on collaboration opportunities with suppliers and other councils to maximise impact and foster collective progress towards sustainability. As part of our services, we also offer support for subsequent projects, including training programs, consultancy services, or research projects, to further support the implementation of your CE improvement plans.

[70] Local Government Procurement (LGP) has been prescribed under s55 of the Local Government Act 1993 (NSW), allowing councils to utilise supply arrangements coordinated by LGP without the need to go to tender in their own right. LGP therefore has the same status as NSW Procurement in having this legislative requirement.

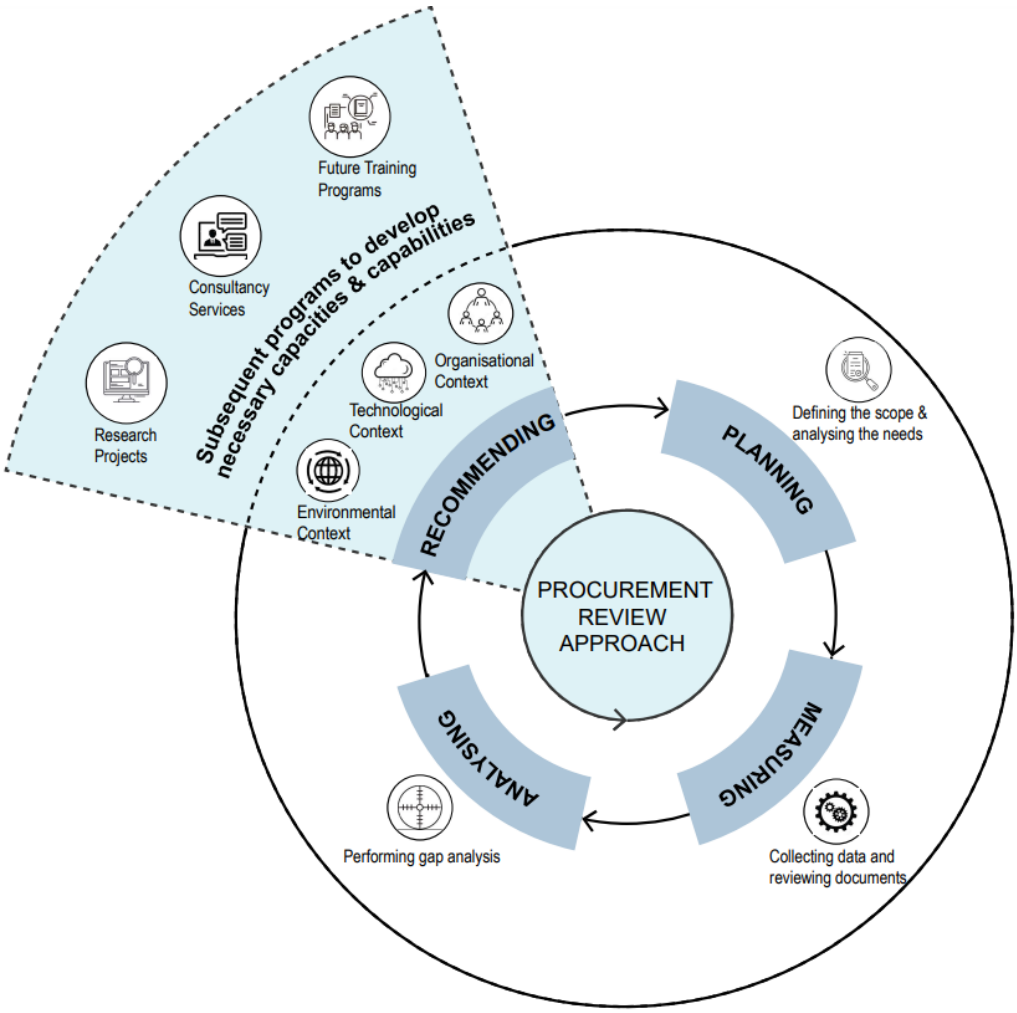

Figure 11. LGP's structured methodology to review procurement