



Submission to the Productivity Commission: Opportunities in the Circular Economy

About LGANT

LGANT is the peak voice of local government in the Northern Territory (NT), representing 16 of the Territory's 17 councils. Membership consists of four municipal, nine regional councils, and three shire and two associate members. LGANT's strategic direction is set by a nine-member Board elected from member municipal, regional, and shire councils. LGANT provides leadership, support, representation, and advocacy on behalf of our member councils for the benefit of their communities.

On behalf of the Local Government Association of the Northern Territory (LGANT) and its sixteen member councils, I thank you for the opportunity to lodge a submission into "Opportunities in the Circular Economy".

Introduction

Local government's responsibilities for the collection and disposal of waste place the sector at the centre of efforts to progress circular economy (CE) initiatives. The majority of NT councils have recognised the need to transition from rubbish disposal to more responsible waste management practises, and this has occurred despite many councils, especially those outside the Territory's urban areas, grappling with significant challenges, including:

- dealing with vast distances and low population density;
- limited economies of scale;
- difficulties in funding the purchases of specialised equipment
- difficulties finding skilled operators to operate specialised equipment;
- a lack of market demand for the outputs of current waste management treatment; and
- funding gaps that hinder councils' capacity to deliver waste management services (including to meet regulatory requirements and minimum standards).

Vast distances place an enormous impost on any prospective project due to the requirement to transport waste to centralised locations for processing. In addition to this, smaller economies of scale – a consequence of the Territory's smaller population base – means that the quantity of materials for processing ultimately do limit feasibility to purchase different types of specialised equipment to handle a variety of waste streams more efficiently. In result, these challenges negatively impact the development of markets for processed materials and ultimately hinder opportunities in circular economy. Resource recovery rates in the Northern Territory continue to be the lowest in Australia. According to the *National Waste Report 2022*, resource recovery rates repeatedly fell below 20% across the period 2006 to 2021, with the NT (just) exceeding 20% in one year across this 15-year period.

This submission brings attention to the idea of "scale" and "remoteness" in circular economy. It is acknowledged that remote operating contexts do constrain the solution options available to local councils to transition to a circular economy. Consideration of these contexts is necessary to ensure the benefits of circular economy can reach all communities. It is noted that managing waste close to its source is expected to make recovery efforts more viable. Learning from, and adopting, piloted and proven circular economy initiatives from interstate and abroad, especially for remote operating contexts, will go a long way to inform solution options for the Territory to transition to a circular economy.

Case Study 1: Central Desert Regional Council

Central Desert Regional Council (“CDRC”) covers a vast area of Central Australia extending from the Western Australia border to the Queensland border, an area 120 times the size of the ACT. The region has a population of 4,200 people spread across 12 communities, with most communities hundreds of kilometres from Council’s main depot.

As most of the population are traditional owners, there is little private land ownership and, hence, an extremely narrow rate base. This severely constrains Council’s spending capacity and leaves it heavily reliant on Territory and Federal government grants to enable it to undertake circular economy initiatives.

Despite these constraints, initiatives the CDRC have implemented include:

- specialist equipment purchases (subject to successful grant applications);
- capacity building of staff;
- community outreach; and
- the establishment of partnerships with waste processes and other relevant organisations.

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Current status

The current approach to waste in the NT can be characterised as ‘Improved Waste Management’. Whilst a more linear approach to waste management is still in place, waste management is being undertaken more efficiently.

In 2023, the NT Government’s Department of Environment, Parks and Water Security funded a Circular Economy Project Officer within LGANT to support the propagation of initiatives contained in its *NT Circular Economy Strategy 2022-2027* across local government. This funded position has been responsible for several on-going initiatives working with LGANT member councils. These initiatives have included:

- coordination of regional working groups to share resources (Top End, Big Rivers and Central Australia regions);
- building links between councils and the waste management industry;
- representing local government on the NT’s Environmental, Sustainability and Governance Working Group; and
- establishing links between councils and relevant NTG agencies.

Climate change

The NT’s historical (and increasing) exposure to extreme weather events has serious waste implications. Cyclone events can generate massive amounts of green waste and general waste which has the potential to overwhelm waste infrastructure. In 2018, for example, the Category 2 Cyclone Marcus generated a vast amount of green waste in the Greater Darwin area. This event almost

overwhelmed the City's Shoal Bay Waste Management Facility. An immediate implication of such events is to shorten the facility's operational life. However, build-up of green waste following extreme weather events also raises the threat of spontaneous combustion. An increase in high intensity storms and more extreme cyclone-related weather from a changing climate will exacerbate these challenges.

Current activities

Territory councils have engaged with, and are implementing, most of the national waste management initiatives – often in conjunction with the Northern Territory Government. Current activities include:

- Tyre Stewardship Australia (a tyre shredding facility is being established in Katherine which will assist in crumbing product from surrounding remote communities);
- demonstration roads – funds have been allocated for some councils to use crumbed tyres in road construction;
- The Australian Packaging Covenant Organisation (APCO) is investigating the feasibility of processing plastic waste in the NT, including for remote communities;
- Household battery stewardship – this is a relatively underdeveloped initiative mainly confined to an education program encouraging users to drop used batteries off to central locations;
- Mobile muster – has proved to be a successful program in reducing the volume of mobile phones ending in landfills;
- drumMUSTER and Agsafe – long running programs with good connections into the NT pastoral sector; and
- Biodigester – a presentation at the 2024 Circular Economy Symposium in Darwin on a product called *Foodie* generated a good deal of interest as a means of processing organic waste into fertiliser.

Whilst a number of activities are being implemented, it is acknowledged that a number of opportunities continue to be largely underdeveloped in the Territory, not least due to the challenges highlighted above. Underdeveloped areas include product stewardship schemes in Northern Territory, plastic and glass recycling initiatives, mattress recycling, solar PV recycling and waste to energy as key examples.

In keeping with the Commission's focus on *Opportunities*, the latter section of this submission considers supply and demand initiatives which can help promote adoption of circular economy practises. Due to the challenges of distance and isolation in the Territory context, particular emphasis is given to small scale "off grid" solutions which can be more readily adopted in remote and isolated areas.

Opportunities

Waste streams

A consistent frustration of active players in the industry is the corruption of waste streams developed through recycling programs. The lack of “purity” of waste often eliminates the viability of reuse initiatives. As a fundamental phase for a circular economy, it is essential this stage operates efficiently and reliably.

In most jurisdictions, management of waste collection rests with local government either directly or through a contractor. Without a focus on this phase – and without appropriate resourcing – the creation of a circular economy is not possible. There is much existing knowledge overseas and interstate which has potential application locally (Case Studies 4 and 5 below touch on some examples).

In addition to mitigating the corruption of waste streams, opportunities to improve recycling generally in the Territory remain underexplored or underdeveloped, such as through Product Stewardship programs or through resourcing the sector to enhance recycling capabilities for low-hanging waste streams (e.g. plastic and glass, mattresses and PV solar panels as highlighted above).

LGANT recommends:

An investigation be commissioned to undertake a survey of best practise in managing waste streams, conducting pilot projects and disseminating this information to councils nationally.

Funding an education framework and campaign for consistent waste education messaging to support reduced contamination levels across communities and businesses.

Regulatory harmonization

Decades of operating under a more linear economy model has necessarily resulted in the creation of regulations and legislation that are not appropriate for, or conducive to, circular economy.

LGANT recommends:

For all levels of government to review and amend regulations, legislation and management practises; and to undertake a thorough audit of existing waste management regulations and project management to ensure they align with CE principles (see for example Case Study 2 on demolition and project design).

Government purchasing

Government purchasing is significant and engages with every portion of the economy. Collectively, governments can have significant impact in creating a solid foundation on which a robust circular economy can be built, such as by encouraging private sector engagement to capture these opportunities.

LGANT recommends:

Government purchasing policies be amended to preference suppliers which can establish they are utilising circular economy business models.

Weighting should be added to government tender proforma for resource recovery/recycling in construction and demolition projects, so that the tenderer can cost and demonstrate how and what they will recover

Part of the 'Scope of Works' should include the requirement to separate waste streams on-site before landfilling. This is expected to reduce waste going to the landfill as the contractor has separated into waste streams for stockpiling and recycling.

Reporting requirements for the contractor to demonstrate type, quantity, and location of materials to landfill vs recycled/reused.

Case Study 2: Remote Project Design and Implementation

A remote council has reported on the significant waste impact due to insensitive project planning in managing the demolition and construction of new dwellings in its remote communities. The largest contributor to waste in the remote communities is the construction projects managed by the NTG.

When putting out tenders in the remote area, Government agencies have not made any requirement for separation and recycling of materials. . Demolition and build contracts are often merged in tendering which means that specialist demolition companies that focus on resource recovery are often excluded in tender, The lack of specialist resource recovery does have profoundly negative impacts in how waste is subsequently handled.

The lack of consideration given to resource recovery in these projects does negatively impact how waste is ultimately handled. In one remote community last year, for example, approximately 15 houses were demolished with the materials being sent directly to landfill as "mixed construction waste". As remote councils don't have the capacity or machinery to sort/process these types of waste, this particular example, resulted in a 60x25x4m cell being completed filled with waste that, if managed differently at the source, could have resulted in a significant reduction (up to 90%) in the total material being buried.

Waste professionals estimate that, under current practises, approximately five cubic metres of waste is generated from each new build. Most of this waste is plastic wrapping, pallets, cardboard, and off-cuts of excess materials, nearly all of which has the ability to be recycled, but instead ends up in the remote landfills. With the Federal Government's *Housing Australia Future Fund* being rolled out, and with its commitment to build thousands of new dwellings – the absence of considered waste handling and resource recovery requirements, especially in tendering, is expected to have negative waste handling impacts.

Circular economy research

The scale and complexity of transitioning to a circular economy will require many practises to be reinvented requiring 'out of the box' thinking and research. Opportunities to import waste from nearby South-East Asia, for example, may bolster economies of scale required to support investment into new waste processing facilities and technologies in the Northern Territory.

LGANT recommends:

Implementing CE-specific research funding streams to promote industry-research connections. These might include:

- Targeted R&D Tax concessions
- CE-specific ARC Linkages research grants.

Case Study 3: “Precious Plastic”

“Precious Plastic” ([A Big Bang for Plastic Recycling \(preciousplastic.com\)](https://preciousplastic.com)) is a project of One Army, a Netherlands based organisation, to address plastic pollution. The group has designed and developed machinery for processing waste plastic, namely a plastic shredder and extrusion, injection and compression machines. Machine designs are open source and readily available on their website for anyone to download for manufacture.

One Army have established a marketplace for products which have been manufactured by members of the “Precious Plastics” network; and business tools created to guide the operation a business. As of 9 October 2024, there were 1,158 Precious Plastic-aligned members globally with another 2,000 in the process of applying

Case Study 4: Mycoremediation

The use of fungus in removing contaminants (mycoremediation) has gone from a speculative science to a viable means of addressing intractable processing challenges(1). These mycoremediation organisms are being used to remove a range of contaminants including heavy metals, organic pollutants, textile dyes, leather tanning chemicals and wastewater, petroleum fuels, pharmaceuticals, pesticides and herbicides.

The evidence suggests that mycoremediation is an approach that can operate successfully across scales, providing a potential opportunity for application in remote operating contexts.

(1) *Mushroom as a product and their role in mycoremediation*, [Mushroom as a product and their role in mycoremediation | AMB Express | Full Text \(springeropen.com\)](https://www.springeropen.com/journal/14754/1/1)

Remote community’s circular economies

The NT’s remote communities face very challenging problems in relation to waste management which impact opportunities (and options) for transitioning to a circular economy. The NT’s wider challenges of isolation and distance are compounded many times over in remote communities. Identifying opportunities for these communities to effectively participate in circular economy is necessary to ensure the benefits of circular economy are shared.

LGANT recommends:

Specific funding be allocated to remote communities to support pilot projects, feasibility studies and innovation in waste management, such as collaborating with technology developers to create scaled down versions of existing technologies and “off grid” circular economy systems.

Case Study 5: East Arnhem Regional Council

The East Arnhem Regional Council (EARC) is developing a potential model for the circular economy with its *Circular Economy in Remote Communities* project.

The Council is located at the eastern-most edge of the Top End, 600 km east of Darwin. Its 9,000 residents live in nine communities, five of which are on islands. The project’s mission includes the specific goal to “recycle and reuse materials within communities” (emphasis added).

EARC has developed a cash for containers program which has diverted 2.5 million containers from landfill and directed \$25,000 in payments to community members. The council has received funding from the NTG to purchase a sorting machine, which has increased efficiency and, importantly, facilitated quicker payment to community members further supporting increased recovery rates. Council’s planned next phase is to establish Resource Recovery Centres in its communities.

- An additional component of the project is to target e-waste. Over the past six years, 12,000 kg of e-waste has been recovered from communities. The final stage of the project is developing applications for these waste products, including: recycled art;
- recycled goods; and
- minor processing trials.

Remaining products are stockpiled for transport by barge to Darwin for processing.

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