Draft Queensland Organics Strategy

2022–2032

A strategy to improve the management of domestic and commercial food wastes, garden organics and timber

Queensland Government

Prepared by: Office of Resource Recovery, Department of Environment and Science

The Department of Environment and Science acknowledges Aboriginal peoples and Torres Strait Islander peoples as the Traditional Owners and custodians of the land. We recognise their connection to land, sea and community, and pay our respects to Elders past, present and emerging.

The department is committed to respecting, protecting and promoting human rights, and our obligations under the *Human Rights Act 2019*.

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September 2021

Consultation considerations

The draft Queensland Organics Strategy (the draft Strategy) has been developed in collaboration with key stakeholders (see Appendix 1)—setting the scope, theme and actions for managing organic waste in Queensland.

The draft Strategy sets out the short (< two years), medium (two–five years) and long-term (five–10 years) actions to drive improved management of organic material in Queensland.

Feedback received during the development of the draft Strategy has been supportive of the proposed actions, to enable Queensland to meet state and national targets. Targeted consultation has been undertaken during 2020 and 2021 through the Stakeholder Advisory Group and a range of workshops.

The success of implementing an organics strategy for Queensland will depend on household awareness and support for these actions, and significant behaviour change will also be needed for opportunities to be realised.

The Queensland Government is seeking public feedback on the draft Strategy **until 5pm Monday, 1 November 2021.**

You are invited to participate in a survey which is available on the Queensland Government Get Involved website or provide feedback by email to: **ResourceRecovery@des.qld.gov.au.**

Key considerations and feedback is being sought on the following:

Organic material is a major waste type that is disposed to landfill. Across Australia, an estimated 6.7 million tonnes of organic waste was sent to landfill in 2016–17.

Question 1—Do you consider the draft Strategy will provide the necessary framework to address the key problems resulting in organic waste being disposed to landfill?

Queensland aims to reduce 25% of household waste by 2050. National targets for 2030 are to halve organic waste sent to landfill and global 2030 targets are to halve global food wastes at the retail and consumer levels per capita and reduce food losses along the production and supply chains.

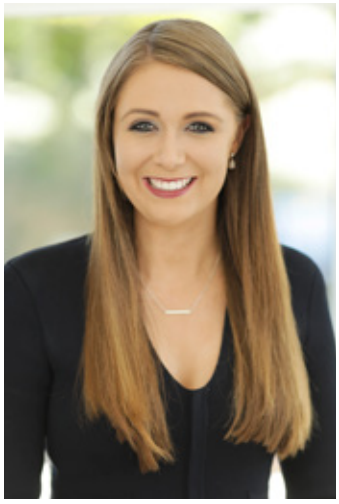
Question 2—Do you consider the proposed actions will be effective in achieving the targets under the *National Waste Strategy* and *Queensland's Waste Management and Resource Recovery Strategy*?

Four themes inform this Strategy: Education, Infrastructure and Services, Market and Product Development, and Data, Regulation and Enforcement.

Question 3—Do you consider the proposed themes, timing and order of the actions are right?

Across the four themes, actions have been proposed for state and local government, industry and the community over the short, medium and long-term timeline.

Question 4—Are there any actions missing that should be included?



Minister's foreword

Queensland is committed to playing its part in the transition to a circular economy. This involves moving away from a 'take-make-dispose' approach to using resources efficiently and keeping them in the economy for as long as possible.

Events of recent times have placed unprecedented pressures on our communities, businesses and economy. There has also been a fundamental change in the value we place on having a safe and healthy environment and the way we relate to our surroundings. This includes the things we buy and the waste we produce.

In 2019, the Queensland Government released *Queensland's Waste Management and Resource Recovery Strategy*. The actions outlined in the Strategy aim to reduce the amount of waste that is produced and improve recycling and recovery efforts, so that as little waste as possible ends up in landfill.

Improving how we manage organic waste is one of the foundation measures identified in the Strategy.

Organic waste includes garden, timber, household and commercial food, food processing, bio-solids and agricultural wastes. It makes up around half of what Queenslanders throw away each week in their wheelie bin and only a small amount is recovered.

Organic waste is also one of the main types of waste sent to landfill. When it breaks down, it releases methane, a greenhouse gas that has an estimated global warming potential of at least 28 times that of carbon dioxide.

The draft *Queensland Organics Strategy 2022–2032* (the draft Strategy) outlines the actions we will take over the next decade to avoid the generation of organic waste and improve its end-use management. The actions also support the transformation of organic material into high order, value-add products and the sustained growth of the organics recycling industry in Queensland.

In addition, the draft Strategy will help us meet our national commitments to contribute to halving food waste and the amount of organic waste going to landfill, by 2030.

Now is the time to re-think how we view organic 'waste' and we need the help of all Queenslanders.

Together, we can transform organic material into a valuable resource that helps build economic recovery, provides opportunities for new markets, creates jobs for Queenslanders and protects our unique environment.

Meaghan Scanlon MP
Minister for the Environment and the Great Barrier Reef
Minister for Science and Youth Affairs

Stakeholder's Advisory Group foreword

The Queensland Organics Strategy Stakeholder Advisory Group (Advisory Group) was established to work with the Queensland Government to assist in developing a Queensland Organics Strategy.

The Advisory Group's membership (listed below) includes peak bodies representing the agriculture, retail, hospitality, and resource recovery sectors, local government, environment and community groups, utility companies and food rescue businesses. The Queensland Government thanks those representatives who have given their time and expertise to helping shape this draft Strategy.

Members of the Advisory Group have provided independent advice to the Queensland Government in relation to:

- the impacts proposed actions and policy settings may have on the represented and other sectors
- the issues preventing various sectors from increasing avoidance and diversion of food and agricultural waste to contribute to targets
- the opportunities for infrastructure investment and market growth, and for greater 'value add' where organic material may already be diverted from landfill
- assisting with establishing technical working groups.

The assistance of Advisory Group members, including reviewing draft materials and facilitating meetings and workshops, has been invaluable. The Queensland Government would also like to thank the participants who attended workshops and meetings across the state during the targeted consultation process in March through June 2021.

The Advisory Group has demonstrated the benefits of a collaborative working network where there is shared information and responsibility between government, industry and community. This collaborative approach sets the framework for continued work toward the finalisation and implementation of Queensland's Organics Strategy.

Queensland Organics Strategy Stakeholder Advisory Group members

Members meet regularly to promote organics management action within their sector and to collaborate with representatives from other sectors.

Peak bodies

- Australian Council of Recycling
- Australian Food and Grocery Council
- Australian Organic Recyclers Association
- Australian Packaging Covenant Organisation
- Boomerang Alliance
- Local Government Association of Queensland
- National Retail Association
- Queensland Farmers' Federation
- Waste Management Association Australia
- Waste Recycling Industry Association Queensland

Business members

- Foodbank Queensland
- Queensland Urban Utilities
- OzHarvest

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Fast facts

The total estimated greenhouse gas savings from recycling organic waste in Queensland in 2018–19 was 3.8 million tonnes of carbon dioxide. This is equivalent to planting 844,096 trees or taking 130,392 cars off the road each year.

In 2018–19, more than one in five Australians experienced food insecurity, with COVID-19 further increasing the demand for food relief.

Australian households spend between $2,200–$3,800 per year on food that is wasted.

Food and garden organic material makes up approximately 50% of the contents of an average household's general waste bin.

In Queensland, approximately 1.8 million tonnes of food waste was generated in 2016–17, with a third of this coming from households.

In 2018–19, the Australian organics recycling industry created over 4,800 direct jobs and contributed $724 million in industry 'value add' to the Australian economy.

One tonne of composted garden organics can sequester approximately 0.5 tonnes of Co2e (CO2 equivalent) when applied to the land.

Creating healthy soils through the application of composted organics helps reduce water, fertiliser and pesticide use and nutrient leaching, while protecting aquatic environments.

Introduction

The draft Strategy reflects the priorities of Queensland's *Waste Management and Resource Recovery Strategy* (Waste Strategy). It also considers Queenslanders' concerns about the amount of organic material that is generated and disposed to landfill as well as the social, economic and environmental impacts of this disposal.

The Queensland Government is committed to reducing the generation of avoidable organic wastes such as food waste. We are also focused on facilitating and supporting the economic and market opportunities presented through improved recovery and recycling.

The draft Strategy will help drive job creation in the circular economy. It also identifies actions that will assist with retaining the value of materials in the economy for as long as possible, support infrastructure investment decisions and create new or expanded economic and market development opportunities.

Improving organics recovery rates presents significant opportunities to strengthen the organics supply chain and create jobs. These opportunities include food waste avoidance education and awareness programs, expansion of Garden Organics (GO) or Food Organics (FO) or Food Organics/Garden Organics (FOGO) household and commercial services, and support for critical organic waste processing infrastructure, particularly in regional areas.

Considerable investment will be required by all levels of government and the private sector to get us to where we want to be. We will continue to work with key stakeholders to develop an implementation plan that identifies the priority actions and delivery timeframes, to deliver long-term and sustainable change.

The problem and opportunities

Organic matter contributes significantly to the waste stream. There are potential adverse environmental, social and economic impacts associated with poor management and disposal of organic waste, including:

- contamination of waterways
- odour impacts from sites
- contribution to greenhouse gas emissions.

Although organic waste is often seen as a naturally produced waste, when disposed to landfill it breaks down anaerobically releasing methane, a greenhouse gas with a Global Warming Potential between 28 and 36 times that of carbon dioxide.

Organic materials are a valuable resource that can be used for a variety of purposes, including:

- in the production of animal feed, compost and soil improvers
- as a feedstock for the biomanufacturing and biotechnologies sectors to create bioproducts, bioenergy and biofuels.

Improving the management of organic waste provides multiple opportunities and benefits with social, economic and environmental outcomes.

With more than one in five Australians experiencing food insecurity in 2018–19, there is an urgent need to improve and increase the diversion of edible food to people in need. Since COVID-19 began, food rescue organisations have reported a significant increase in requests for support. The Queensland Government has recently provided over $900,000 to six organisations through the Food Rescue Grant Program. This will help to rescue the equivalent of 3.3 million meals over the lifetime of the program.

An estimated 50 percent of an average household's general waste bin is made up of organic material. While the majority is garden organics, the food waste has a reported annual value of between $2,200 and $3,800 per household, per year. Food waste is avoidable and can reduce costs for households.

The indirect costs associated with organic waste include the loss of the resources used to create it, farming efforts, production costs (land, water, nutrients, energy, fuel), transportation and supply.

The Australian Organics Recycling Association (AORA) released *The Economic Contribution of the Australian Organics Recycling Industry* in March 2020 . It identified that in 2018–19, the Australian organics recycling industry created over 4,800 direct jobs with one job being supported for every 1,550 tonnes of organic material that was recycled. It also found that the organic recycling industry contributed $724 million in industry value add to the Australian economy.

During 2018–19, Queensland recycled 1.18 million tonnes of organic material , thereby helping to support over 760 Queensland jobs.

The size of the problem

Organic material is one of the main waste categories sent to landfill across Australia.

In 2016–17, Australia generated significant volumes of organic waste, with almost a quarter being food waste.

	Waste generated (Tonnes)	Disposed to landfill (Tonnes)	Disposed to landfill (Percent)
All organic waste	30 million	6.7 million	22 %
Food waste	7.3 million	5.5 million	75 %

Agricultural organic waste such as livestock manure and bagasse are managed onsite and used as a resource to improve soil nutrients and health. Similarly, food waste could be reused in line with the waste and resource management hierarchy to deliver significant social, economic and environmental benefits.

Of the 7.3 million tonnes of food waste generated nationally in 2016–17, approximately 1.8 million tonnes were generated in Queensland, with one third coming from households.

What is organic waste?

Organic waste

Organic waste is a broad category of waste derived from material that was once living, excluding petroleum-based materials. This includes food (domestic and commercial), garden, biosolids, food processing wastes and agricultural by-products.

Within the organic waste stream, 'core organic' wastes are often disposed to landfill, with 'non-core' wastes often being a by-product of another process. These can be sustainably managed and used on-site, including in agricultural systems.

In the *National Waste Report 2018*, the data recorded for organic waste covers:

- core organic waste—domestic and commercial food wastes, garden organics and timber
- non-core organic agriculture waste—including manure, sugarcane bagasse, cotton gin trash
- non-core organic fisheries waste—including bycatch, offal, shells
- organic wastes reported within the hazardous waste material category—biosolids, grease trap sludge and waste from abattoirs and tanneries.

While the draft Strategy focuses on the identified 'core' organic waste sectors, the work that is being done by the agricultural sector to use organic material in value add products and processes is recognised and supported.

Food waste

Food waste is an important component of the organic waste stream and targets have been set specifically to address it.

The *National Food Waste Strategy* adopts a broad and inclusive definition of 'food waste' that covers:

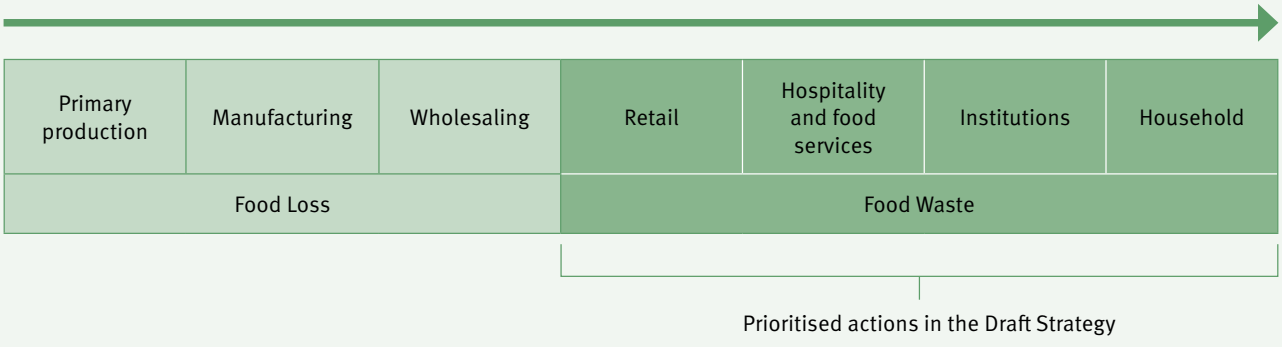
- solid or liquid food that is intended for human consumption and is generated across the entire supply and consumption chain
- food that does not reach the consumer or reaches the consumer but is thrown away. This includes edible food, the parts of the food that can be consumed but are disposed of, and inedible food, the parts of food that are not consumed because they are either unable to be consumed or are considered undesirable (such as seeds, bones, coffee grounds, skins, or peels)
- food that is imported into, and disposed of, in Australia
- food that is produced or manufactured for export but does not leave Australia.

This definition excludes food that is produced or manufactured in Australia which is exported and becomes waste in another country. It also acknowledges that there are opportunities across the entire fresh and processed food systems to achieve improved environmental, economic and social outcomes.

The loss of edible food and inedible food parts at the point of retail or consumer use is typically considered 'food waste'. Food that is lost along the production and supply chain before reaching the retail stage is generally referred to as 'food loss'.

To align with the broader definition in the *National Food Waste Strategy* 'food waste' is used as a collective term in the draft Strategy, however the actions have been prioritised to address food waste generated from retail businesses through to households. This waste is often avoidable, generates emissions, water and cost impacts from across the entire supply chain, and is currently disposed to landfill in Queensland.

Figure 1: Food waste production and supply chain



Queensland's organics strategy

Our vision—Achieving social, economic and environmental benefits by harnessing the value from organic materials to the greatest possible extent.

The Waste Strategy has a vision for Queensland to become a zero-waste society by transitioning to the principles that underpin a circular economy where the value of waste is retained in the economy for as long as possible.

The improved management of organic waste is a priority action area due to the significant contribution of organic waste to the waste stream, and the social, economic and environmental benefits from improved management.

The draft Strategy sets the framework for managing organic materials in Queensland and identifies actions, supports the transition to a circular economy, and builds economic opportunity through providing policy and investment certainty to industry.

The Queensland Government is committed to driving the significant changes for this valuable resource in Queensland.

Goal—To reduce organic waste disposed to landfill, create jobs and promote management of organic material in line with the waste and resource recovery hierarchy.

The draft Strategy supports the transformation of organic material into higher order, value-add products and the growth of the organics recycling industry in Queensland.

The draft Strategy identifies priority actions from avoidance through to improved end-use management. The actions support the Queensland Government's national commitments to implement the *National Food Waste Strategy* target to halve food waste by 2030 and implement actions in the *National Waste Policy Action Plan* to halve the amount of organic waste going to landfill by 2030.

Objectives of taking action will:

- reduce organic material disposed to landfill and the greenhouse gas emissions this generates
- improve soil structure and health, promoting food production and food nutrient quality
- reduce reliance on artificial fertilisers and improve water quality and aquatic environments
- support agricultural exports to meet future carbon border adjustment mechanisms
- increase organic processing capacity and produce high-value end-use products and markets
- reduce organic waste generation, food loss, food waste and associated resource losses in food production and transport to consumers
- build economic opportunity, infrastructure, investment and employment through end-use product and market development and services for organic recycling
- reduce costs for businesses and households through improved organics material management, consumption and recycling
- improve food security through increased and effective redistribution of food to Queenslanders in need.

Core principles

The draft Strategy aligns with the strategic priorities set out in the Waste Strategy. The strategic priorities are identified to help drive a fundamental shift in the way waste and materials are managed in Queensland and support the transition to a zero-waste society.

STRATEGIC PRIORITY 1

Reduce the impact of waste on the environment and communities

By ensuring organic waste is avoided and reused to the greatest potential reduces disposal to landfill and a reduction in greenhouse gas emissions. A healthy environment supports our economy and contributes to our general health and wellbeing, now and for future generations.

STRATEGIC PRIORITY 2

Transition to a circular economy for waste

Transitioning to a circular economy encourages the community, business and industry to manage organic material in order to retain its value in the economy for as long as possible, ultimately transitioning to a zero-waste society. Value can be gained from material otherwise destined for landfill where there are increased options for avoidance, reuse, recycling and recovery of resources.

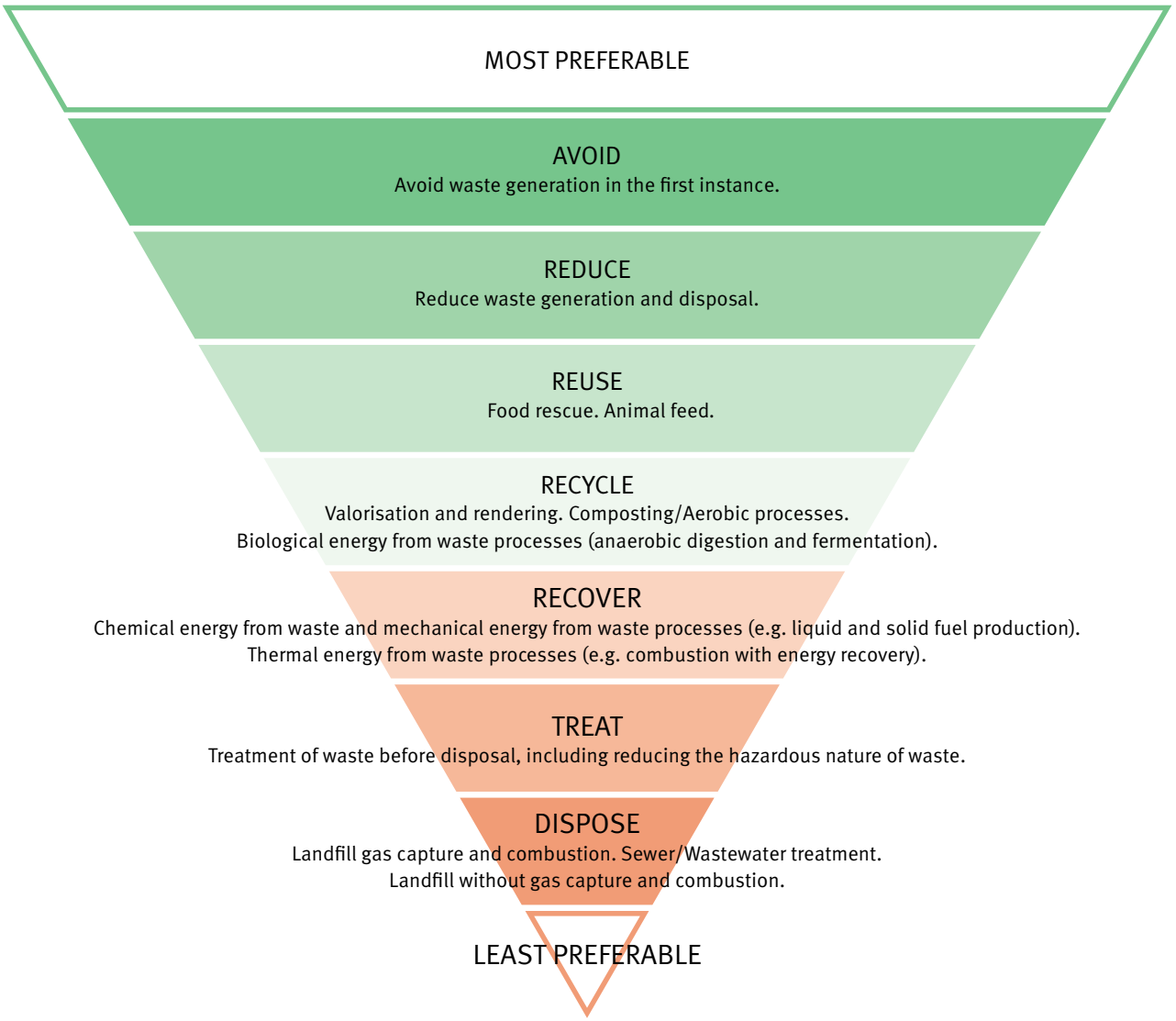
STRATEGIC PRIORITY 3

Build economic opportunity

Organic materials provide opportunity to identify new and higher-value products and commercial opportunities for Queensland businesses and industry. The organic resource recovery sector is an important contributor to the Queensland economy already. However, there is further potential to grow this and other sectors to ensure Queensland becomes competitive for organic processing and develops viable markets. Building economic opportunity creates new jobs, provides upskilling opportunities for the workforce, builds infrastructure capacity and markets in regional areas, and contributes to sustainable and long-term growth in Queensland.

The draft Strategy is guided by the waste and resource management hierarchy which should be considered under Queensland's *Waste Reduction and Recycling Act 2011*. The hierarchy highlights that waste should be avoided and reduced as first priority, after which options for reuse and recycling should be explored.

Figure 2: Waste and resource management hierarchy

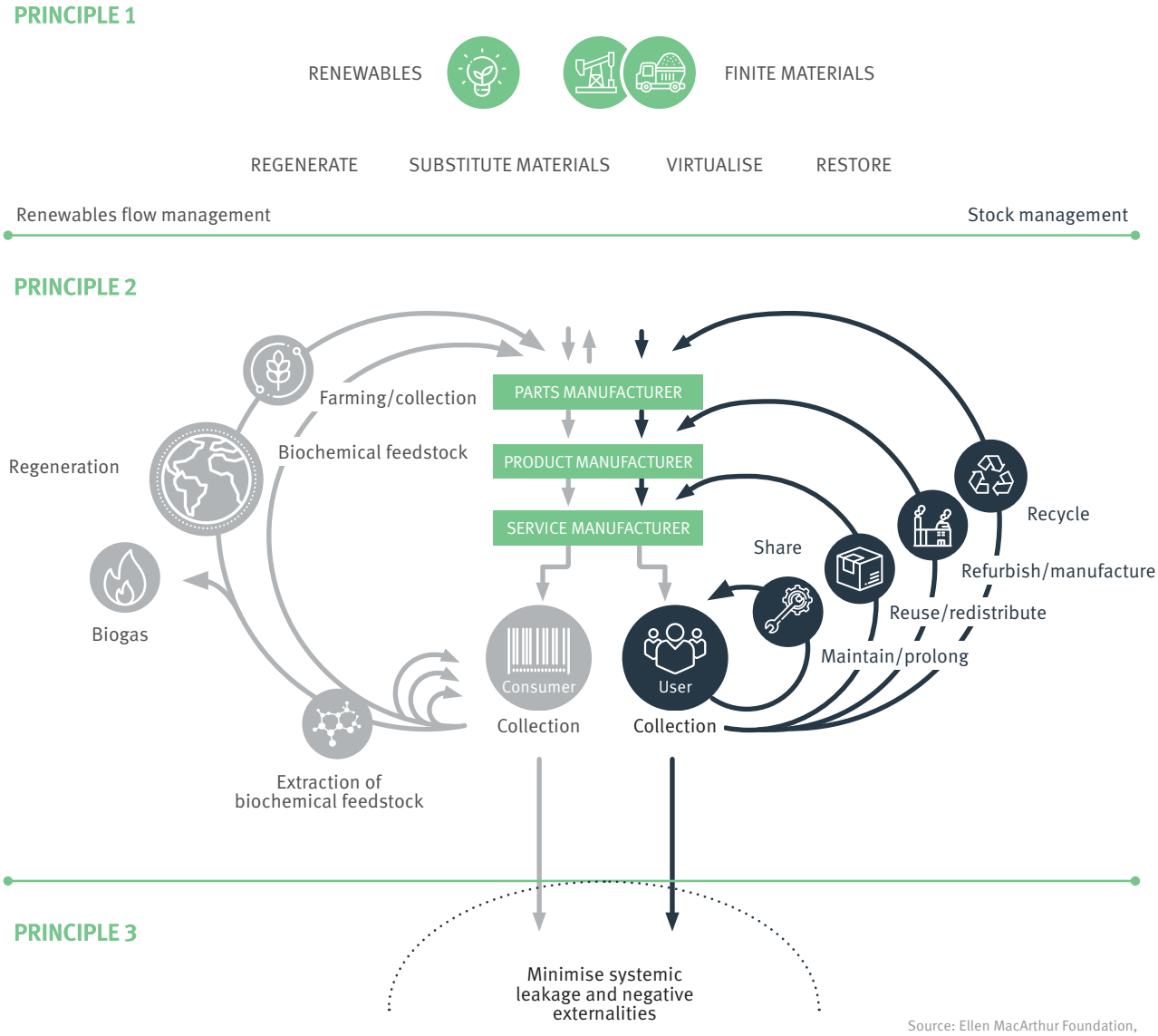


Actions that avoid, reduce, reuse and recycle materials align with the circular economy approach to prevent, capture and use waste at its highest value. A circular economy is based on the principals of designing out waste, keeping products and materials in use, and regenerating natural systems.

Globally, governments and businesses are moving towards a circular economy model. Adopting circular economy principles presents opportunities for industry and government to alter the way a substantive part of the economy operates, while creating jobs, growth and improved environmental sustainability.

Shifting away from the linear 'take-make-use-dispose' model will deliver benefits through reduced waste and improved resource efficiency, create new economies and build long-term market, environmental and economic resilience.

Figure 3: Circular economy principals.



Source: Ellen MacArthur Foundation, www.ellenmacarthurfoundation.org

Queensland targets

National Food Waste Strategy target

Align with the national target to halve the amount of food waste generated collectively across Queensland

The *National Food Waste Strategy* sets a 50% reduction target by 2030 against 2016–17 baseline figures, by promoting food waste prevention measures. This means that only actions to avoid, reduce and reuse organic materials will contribute to this target. The following table reflects the estimated Queensland figures in the National Food Waste Baseline Final Assessment Report 2019.

Sector	Primary production	Manufacturing	Wholesale	Retail	Hospitality	Institutions	Households
Total food waste (tonnes)	734,600	277,100	4,090	49,000	63,400	45,600	602,000

The draft Strategy prioritises food waste produced from retail through to consumer sources. This waste has accrued emission, water and cost impacts from across the entire supply chain and is often disposed to landfill in Queensland.

The Waste Strategy targets

15% reduction in household waste across Queensland

The Waste Strategy's household (MSW) waste reduction target is calculated per-capita. With food and garden waste contributing approximately 50% of an average household's general waste bin, actions to reduce food waste, and separate food and garden organic waste contributes toward achieving the target.

Stream	Baseline (2018)	Target 2025	Target 2030
MSW	0.54t	10%	15%

80% of waste across Queensland is recovered and does not go to landfill

In 2017–18, more than 50% of Queensland's waste was sent to landfill. The Waste Strategy targets reflect overall diversion rates for all material diverted from landfill and actions reducing organic waste material also contribute to this target.

Stream	Baseline (2018)	Target 2025	Target 2030
MSW	32.4%	55%	70%
C&I	47.3%	65%	80%
C&D	50.9%	75%	85%
Overall	45.4%	65%	80%

70% recycling rate for organic waste within Queensland

The recycling rate will be calculated as a percentage of total waste generated. Although the overall interim recycling rate target for Queensland is 65%, an ambitious 70% target has been set to recognise the national industry targets of a 95% recycling rate for organics. It is estimated that achieving a 70% recycling rate for organic waste would result in an additional 597 full-time employees in the organics recycling industry across Queensland. The percentages in the following table relate to waste that is reported as recycled or reused and excludes material from which energy is recovered. Recovering fuels or energy from waste may be suitable for waste that cannot be recycled.

Stream	Baseline (2018)	Target 2025	Target 2030
MSW	31.1%	50%	60%
C&I	46.5%	55%	60%
C&D	50.9%	75%	80%
Overall	44.9%	60%	65%

Roles and responsibilities

The actions are identified for delivery in partnership, between Commonwealth, State and local governments, working with industry, businesses and the community, to ensure organic waste is being managed in a coordinated and integrated manner.

The Queensland Government is committed to ensuring that policy and regulatory settings support improved organics management, recovery and processing, and market development.

Action themes

Four interdependent action themes have been identified through targeted consultation and engagement with stakeholders. Actions under each theme are required for the Strategy's goal and vision to be realised and will not occur in isolation, with many actions being common across the themes.

Education

A comprehensive and coordinated education program is important to drive awareness, knowledge and behaviour change for improved organic material management across all sectors.

An education program needs to address the waste management hierarchy to promote avoidance behaviours in the first instance, minimise contamination in organic waste collection services, and support the development of new markets and products.

Realising the value of food and organic material and understanding the impacts of and benefits that each sector can contribute (from at-home or community composting initiatives to clean stream feedstocks through kerbside collection services) is critical to ensuring the success of a Queensland organics strategy.

Action		< 2 years	3–5 years	5+ years
1.01	**Support research and education which drives behaviour change to promote waste avoidance.** • Continue to work with and support the Fight Food Waste Cooperative Research Centre to progress identified priority projects. • Develop and implement tools supporting food waste prevention and reduction and utilise digital mediums to increase access and distribution of these tools. • Promote consistent and effective information and messaging to help people avoid food waste. • Implement education and awareness tools through partnerships between state and local governments, industry and community, with a specific focus on minimising contamination and drive high quality end products arising from source separation collection services.			
1.02	**Promote the development of and access to education materials and resources.** • Apply research findings to the development of education resources to integrate organics recycling behaviours through the education system. • Encourage all stakeholders to support the development of and use of a central knowledge hub for organic waste resources for Queensland.			
1.03	**Encourage Queensland business to take up educational opportunities to improve waste reduction practices.** • Support small to medium businesses with tailored waste, energy and water reduction advice. • Promote and encourage businesses to sign up for the national voluntary commitment program for food waste reduction activities.			
1.04	**Promote the standardisation of labelling and storage advice to householders.** • Continue to partner with all sectors to standardise food labelling through the Australasian Recycling Label. This will help inform Queenslanders with their purchasing and recycling decisions and promote food waste avoidance and organics recycling.			

Infrastructure and services

Strategically located infrastructure and services are required to increase Queensland's capacity to collect and process organic material, capitalise on integrated solutions, and produce high value products where they can be used. With state and local governments, industry and the community working collaboratively, the infrastructure and services needed can be delivered. For example, ensuring site locations and activities have considered suitable land zoning with adequate services (power, sewerage and water) and other infrastructure for current and future innovative technologies to maximise the benefits of organic recycling.

Action		< 2 years	3–5 years	5+ years
2.01	**Support food rescue to increase high quality food redistribution to Queenslanders in need.** • Support food rescue organisations to increase high quality food redistribution to Queenslanders in need, building on the findings of the Queensland Government Food Rescue Grant Program ($905,622). • Encourage commercial retailers to divert edible food to Queenslanders in need.			
2.02	**Increase organics services at public events in Queensland.** • Queensland Government and local government to promote avoidance messaging and support the adoption of segregated food waste collection systems at government sponsored and local government events.			
2.03	**Encourage fit-for-purpose household and commercial food organic and garden organic collection systems.** • Share the findings from the Queensland Government funded ($770,000) Food Organics and Garden Organics (FOGO) 2021–22 trials in Townsville, Rockhampton and Lockyer Valley local government areas. • Investigate suitable options using tools such as the Queensland Government's Resource and Waste Collection Options Tool. • Promote locally grown food which connect producers and consumers, for example through co-operatives, farmers markets and community gardens • Encourage home-based approaches for organic waste processing, including composting, worm farms, bokashi composting systems, etc. • Continue to work with local governments to understand the feasibility of kerbside organics services. • Investigate support for local composting hubs.			
2.04	**Commercial businesses to explore options to divert organic material from landfill.** • Identify opportunities for source separation and collection of organic waste. • Facilitate onsite organic waste processing. • Investigate packaging options that reduce the potential for plastics contamination in the organics stream.			
2.05	**Queensland Government, local governments and industry to support integrated infrastructure solutions.** • Co-locate organics recovery with other industries such as food processing or agriculture to combine recovery with the co-processing of other putrescible organics, to produce higher-value products. • Investigate distributed infrastructure solutions, including mobile infrastructure to suit location and feedstock composition. • Encourage investment in new or expanded processing facilities that are suited to the location based on considerations around feedstock and proximity to markets and sensitive receiving environments.			
2.06	**Increase organics processing capacity in Queensland.** • Support the bioenergy and biochemical industries to increase their processing capacity in Queensland, including for putrescible organic waste streams, while ensuring environmental and social impacts are mitigated appropriately. • Support a strategic increase in Queensland's processing capacity for putrescible organic waste streams through new and upgraded infrastructure. • Local governments collaborate to create economies of scale and meet multiple infrastructure needs. • Local governments review planning instruments against regional waste management and infrastructure plans to ensure that they support solutions that help increase their region's current and future capacity to process organic waste.			

Market and product development

Consistent policy and regulation, partnerships and collaboration, and a sound knowledge platform, will drive innovation, investment, information sharing and the uptake of new opportunities in Queensland. Product design and end markets are needed to ensure the benefits of avoidance and recycling of organic waste are realised, and that organic waste is not stockpiled or disposed to landfill.

Action		< 2 years	3–5 years	5+ years

3.01	**Undertake research and analysis to understand and identify solutions to reduce food loss and food waste.**
	• Support the Fight Food Waste Cooperative Research Centre in:
	  ▸ whole-of-supply chain mapping projects and prioritising food waste hotspots
	  ▸ transforming new commercial opportunities from food and agricultural waste streams
	  ▸ encouraging small-to-medium (SME) enterprises within the agri-food sector to apply to the Fight Food Waste SME Solutions Centre for research funding to address their food waste challenges.
	• Support trial projects which reduce food loss and waste throughout the supply chain across different materials and sectors.
	• Explore the role that retail and hospitality produce specifications have on the generation of food waste.			

3.02	**Undertake research and analysis for strategic investment and promoting product and market development in Queensland.** • Use material flow analyses of Queensland's organic waste streams to attract new businesses to the state. • Identify the data requirements needed to inform investment opportunities for organic material by type and location. • Utilise information from the material flow analysies for organic waste and timber streams to guide research and development into innovative products from waste streams that are being disposed to landfill or currently used for low value activities. • Explore the feasibility of establishing micro-hubs close to suitable organic waste feedstocks to locally manufacture compostable items that are currently imported.			
3.03	**Undertake research and analysis of collection services risks and opportunities.** • Support end-user markets through identifying and promoting risks and opportunities with the use of FOGO-derived composts. • Explore the role of compostable packaging in the collection and processing of organic materials and identify what impact the 2025 national target of 100% of packaging being reusable, recyclable or compostable has on the volume of compostable packaging entering the market.			
3.04	**Promote sustainable procurement policies and funding opportunities.** • Encourage Queensland businesses to adopt and publish sustainable procurement policies that include the use of recycled organic waste content. • Investigate a Queensland Government bioproduct procurement policy to increase local consumption and improve the market for new investors. • Queensland Government to explore innovative funding solutions to incentivise organic waste avoidance and recycling. • Use government purchasing power to increase the uptake of high-quality, recycled organic waste content in Queensland Government projects to help transform the supply market.			
3.05	**Develop partnerships to investigate new and innovative product and market opportunities.** • Identify key partnerships that enable feedstock production and end-users' needs to create products that meet their specifications and market demand. • Develop partnerships across governments and the agricultural industry to support the expansion of infrastructure to value-add to existing activities to transform inedible by-products into valuable and innovative products.			

Data, regulation and enforcement

Clear policy direction and legislative frameworks with reasonable regulation and enforcement will be required to provide certainty, and consistency for industries to promote investment in Queensland. Effective, accessible data and regional waste management and infrastructure planning will assist in identifying opportunities for regional specific needs for organics recycling markets and products.

A transparent and educational approach delivered through collaborative working relationships seek to:

- provide appropriate land planning and environmental regulations suitable for organics recycling activities
- encourage best practice processes
- improve processing technologies
- align infrastructure and regulation that supports and delivers fit-for-purpose products.

Action		< 2 years	3–5 years	5+ years
4.01	**Utilise legislative instruments such as bans to support the draft Strategy.** • Queensland Government to: ▸ implement a staged landfill disposal ban on organic waste streams, subject to an options analysis and feasibility study ▸ continue to implement bans on single-use plastic items to reduce potential contamination of food organics streams and encourage use of Australian Standards certified compostable alternatives (where appropriate), provide certainty to the organic waste industry and reduce contamination in organic waste processing.			
	A staged landfill disposal ban would be explored in consultation with local governments and industry to ensure a fit-for-purpose approach across Queensland that recognises the processing and market capacity and expansion in the different regions. This long-term action will allow time for Queensland to position itself with the education programs, infrastructure, end markets and legislative framework required to facilitate this transition to a circular economy for organic waste and minimise impact to stakeholders.			
4.02	**Review existing policy and regulatory frameworks to support the draft Strategy.** • Queensland Government to review the Environmentally Relevant Activity framework and End of Waste Code frameworks to: ▸ provide for emerging processing technology ▸ provide clear guidance for the expansion of organic waste collection services in Queensland ▸ support the expansion of products and markets arising from increased recovery and recycling of organic waste streams. • Queensland Government to review the policy and regulatory framework to facilitate the development of bioenergy and biochemical processing.			
4.03	**Review data collection and reporting processes, requirements, standards and guidelines.** • Align data collection and reporting systems across state and local governments to national classifications and definitions to improve sharing of information. • Support the national consideration of updated national standards and specifications for organic waste products to improve industry and customer certainty. • Develop and implement a best practice environmental management guideline for composting. • Support review of the Australian Standard for Composting (AS4454) to ensure thresholds and contaminant testing is current and helps improve processing to provide fit-for-purpose outputs. • Develop and implement updated model operating conditions for composting to ensure transparency and consistency for industry. • Develop and implement a monitoring, evaluation and reporting process to assess the Organics Strategy, its implementation and progress towards targets.			

Next steps

The draft Strategy provides the overarching framework and actions for improved management of organic material in Queensland. The next steps include the development of an implementation plan as set out in the four themes.

An implementation plan will be developed, in conjunction with the key partners and stakeholders, to ensure actions are coordinated, achievable, sequenced and funded.

The draft Strategy is just one of a number of actions and programs to improve recycling performance and management under the Waste Strategy. Implementing the Organics Strategy needs to be considered in the context of the full suite of programs, projects, activities and reviews underway and those that are scheduled to occur. Initiatives that have already been delivered include *Respecting Country, A sustainable waste strategy for First Nations communities*, which will help strengthen and re-frame the relationship with Aboriginal and Torres Strait Islander Queenslander's.

The implementation plan will identify sequencing, timing, dependencies and monitoring of actions, and assessment processes for measuring progress toward the targets.

Measuring our progress

The Queensland Government is developing a comprehensive monitoring, evaluation and review framework appropriate for organics management to enable assessment against the set targets.

The Waste Strategy and supporting legislation is subject to regular reviews to measure the performance against the objectives and ensure it remains appropriate to achieving the outcomes and continues to set achievable targets. The Organics Strategy will be reviewed in line with the Waste Strategy review.

With progress towards the targets, the implementation plan and short, medium and long-term actions will also be reviewed with a rolling program of delivery against the actions.

Drivers for action

Global

On 25 September 2015, Australia was one of 193 United Nation member to adopt the United Nations Sustainable Development Goals (UN SDGs). The UN SDGs are the blueprint to achieving a more sustainable future.

SDG 12 marks global action on reducing food waste by ensuring sustainable consumption and production patterns. There are 11 targets contributing to SDG 12, with one directly calling out food waste and loss.

UN SDG 12.3

By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.

Countries are working to implement initiatives to reduce food waste and loss across the production and supply chain to support this target. Action to better use organic materials also has the potential to support other UN SDGs, including:

- **Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- **Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- **Goal 9:** Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.
- **Goal 13:** Take urgent action to combat climate change and its impact.

National

The *National Food Waste Strategy* requires a 50% reduction in food waste by 2030 by every Australian state and territory to align with UN SDG 12.3.

In 2018, the Fight Food Waste Cooperative Research Centre (FFWCRC) commenced with a $30 million grant from the then federal Department of Industry, Innovation and Science CRC Program.

The Fight Food Waste CRC aims to unite science and industry to:

- reduce food waste throughout the supply chain
- transform unavoidable waste into innovative products
- engage with industry and consumers to deliver behavioural change.

Further national action being undertaken to specifically address food waste includes:

- release of the national food waste baseline to monitor and track progress toward the national target
- the national food waste baseline set for Australia at 7.3 million tonnes of food waste generated annually across all sectors
- the establishment of Stop Food Waste Australia
- development of the Australian Food Pact voluntary agreement for industry
- diverting more food to the food rescue sector
- support for education campaigns
- research and technological improvements to improve agricultural efficiency and innovation, waste treatment infrastructure, and ways to create value from food waste.

Strategy 12 of the 2018 National Waste Policy signals the need to reduce organic waste, including garden and food waste, by avoiding their generation and supporting diversion away from landfill into soils and other uses, supported by appropriate infrastructure.

The National Waste Policy was supported by the National Waste Policy Action Plan 2019 which set national targets, including to:

- reduce total waste generated in Australia by 10% per person by 2030
- achieve an 80% average resource recovery rate by 2030 from all waste streams following the waste hierarchy
- significantly increase the use of recycled content by government and industry
- halve the amount of organic waste sent to landfill by 2030
- make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

Target for 2030

By halving organic waste to landfill, 2.7 million tonnes less organic waste would go to landfill every year in Australia.

The *National Waste Report 2020* identified a 2% reduction in the estimated organics waste disposed to landfill across Australia in 2018–19, compared to the 2016–17 figures.

The *National Soil Strategy* sets how Australia will value, manage and improve its soil for the next 20 years. Actions from this strategy will ensure that soil continues to contribute to agricultural productivity, environmental sustainability, and economic growth. A $67 million Food Waste for Healthy Soil Fund was established by the federal Department of Agriculture, Water and the Environment to support the diversion of household and commercial food organics (FO) and garden organics (FOGO) from landfill to soil via the expansion of existing FOGO processing infrastructure and capacity.

Queensland

The *Waste Management and Resource Recovery Strategy* (Waste Strategy), released in July 2019, provides the framework for Queensland to become a zero-waste society, where waste is avoided, reused and recycled to the greatest possible extent, using the principles of a circular economy to retain the value of material for as long as possible. The Waste Strategy sets long-term targets for improved recycling and resource recovery rates by 2050.

Waste Strategy targets for 2050

- 25% reduction in household waste
- 90% of waste is recovered and does not go to landfill
- 75% recycling rates across all waste types

The Queensland Government has already supported actions to reduce the generation of organic waste and divert organic material from landfill, including:

Research, development and education

Providing seed funding to the Centre for Recycling of Organic Waste and Nutrients (CROWN) to promote research, training and extension capabilities in segregating, collecting, processing and using organic waste materials and imbedded nutrients.

- Supporting the Centre for Organic Research and Education (CORE) to
  - develop the *Guidelines for Establishing and Operating an Urban Agriculture Enterprise in Queensland*
  - deliver the annual International Compost Awareness Week and National Organics Week campaigns since 2015.
- Supporting partnerships in the delivery of commercial food and organic waste collection and composting trials with the City of Gold Coast and Clubs Queensland.
- Partnering with the FFWCRC, to support:
  - projects such as the SME Solutions Centre, which provides access to funding, skills and expertise to find the best food waste solutions for small-to-medium sized enterprises
  - the design of effective interventions to reduce household food waste.

Queensland Resource Recovery Industries

- Supporting the move to a circular economy through the development of the *Queensland Resource Recovery Industries 10-Year Roadmap and Action Plan* which sets a framework to accelerate this transition and develop Queensland's resource recovery industries.
- Resource Recovery Industry Development Program to fund projects and initiatives that divert waste from landfill, reduce stockpiling and create jobs.

Queensland's zero net emissions future

The Queensland Government has already supported actions to reduce the generation of organic waste and divert organic material from landfill, as follows.

- The Queensland Government has set climate targets to reduce emissions and create jobs:
  - achieving zero net emissions by 2050
  - an interim target to reduce emissions by at least 30% below 2005 levels by 2030
  - 50% of Queensland's energy generation coming from renewable sources by 2030.
- The Queensland Government's Climate Action Plan and Queensland Climate Adaptation Strategy will ensure Queensland meets its targets and is ready to harness the opportunities and manage the risks from a changing climate.
- Funding to date has supported sectoral and regional initiatives that help to reduce emissions and value organic resources, including innovative circular economy initiatives.
- Examples include providing seed funding for the Australian first Circular Economy Lab, the $1.9 million Communities in Transition Pilot Program, and our partnership with the Chamber of Commerce and Industry to support small and medium enterprises.

Agriculture and food industry development

Releasing a future focused Agribusiness and Food Strategy which:

- positions the agribusiness and food sector to emerge from COVID-19 and establish a strong foundation for the future
- anticipates future change in the way we grow, produce, harvest, distribute and consume food, fibre, fuel, and other primary products. The strategy identifies opportunities to boost productivity, develop new value-added and globally competitive products for expanding markets, support rural communities, and jobs within the regions and businesses across the value chain.

- Releasing the *Queensland Agriculture and Food Research, Development and Extension 10-Year Roadmap and Action Plan* (RD&E Action Plan) which includes:
  - setting the vision for Queensland's internationally recognised agriculture and food research, development and extension to underpin a productive, profitable and sustainable sector
  - supporting the existing sector to grow and develop new business, the RD&E Action Plan highlights the importance of exploring research, development and extension opportunities related to agriculture and food waste minimisation and utilisation
  - the Queensland Government undertaking research and development, commercialisation and investment attraction in digital technologies and management systems. This is to retain quality and minimise waste, including remote sensing, blockchain, packaging, storage, and innovative processing methods and novel products that use timber and agricultural by-products
  - value-adding opportunities for agricultural and food by-products, waste and surplus production due to it continuing to be a major focus for Queensland to grow the value of the sector.
- Releasing the *Queensland Biofutures 10-Year Roadmap and Action Plan*, which includes:
  - setting the pathway to establish Queensland as a world leading sustainable biomanufacturing and biotechnology region
  - the Queensland Government working with research institutions and across sectors, including the agriculture and waste industries, to develop a strong biofutures sector to attract international investment and create regional, high-value and knowledge-intensive jobs
  - the $5 million Queensland Waste to Biofutures Fund that provides support for the development of Queensland-based pilot and demonstration or commercially scalable projects that use conventional waste streams or biomass to produce bioenergy, biofuels and high value bioproducts.

Draft strategy summary

Our vision

Achieving social, economic and environmental benefits by harnessing the value from organic materials to the greatest possible extent.

Objectives

- reduce organic material disposed to landfill and the greenhouse gas emissions this generates
- improve soil structure and health, promoting food production and food nutrient quality
- reduce reliance on artificial fertilisers and improving water quality and aquatic environments
- support agricultural exports to meet future carbon border adjustment mechanisms
- increase organic processing capacity and produce high-value end-use products and markets
- reduce organic waste generation, food loss, food waste and associated resource losses in food production and transport to consumers
- build economic opportunity, infrastructure, investment and employment through end-use product and market development and services for organic recycling
- reduce costs for businesses and households through improved organics material management, consumption and recycling
- improve food security through increased and effective redistribution of food to Queenslanders in need

Themes

- Education
- Infrastructure and services
- Product and market development
- Data, regulation and enforcement

Implementation plan

Monitoring and Evaluation Program

Glossary

Bagasse—fibrous waste remaining when sugarcane stalks are crushed to extract juice.

Biosolids—organic solids derived from biological wastewater treatment processes that are in a state where they can be used as nutrients and soil conditioning agents, as a source of energy or for some other use. Sewage treatment plants are the main source of biosolids in Queensland.

Circular economy—an alternative to the traditional 'linear' economy based on the 'take-make-use-dispose system', in which products and materials keep circulating within the economy at their highest value for as long as possible, through reuse, recycling, remanufacturing, delivering products as services and sharing.

Commercial and industrial waste (C&I)—produced by business and commerce, and includes waste from schools, restaurants, offices, retail and wholesale businesses, and manufacturing industries.

Construction and demolition waste (C&D)—includes waste generated from building, repairing, altering or demolishing infrastructure for roads, bridges, tunnels, sewerage, water, electricity, telecommunications, airports, docks or rail.

Compost—a product created by the breakdown of organic matter by bacteria and other mico-organisms into a nutrient-rich natural fertiliser.

Compost hub—a central location where community members can compost their waste, for example, a community garden.

Compostable products—products that meet Australian Standard 4736 or Australian Standard 5810, or products made entirely out of materials that will disintegrate into natural elements within a commercial composting environment.

Contamination—any material found in a bin that is not accepted by an organic processing facility.

Core waste—waste generally managed by the waste and resource recovery sector, comprising solid non-hazardous waste and hazardous waste including liquids. It is generated in the municipal, construction and demolition, and commercial and industrial sectors, and includes biosolids but generally excludes primary production .

Cotton gin trash—a by-product created in the cotton ginning process.

Disposal—the process of getting rid of waste by landfilling or incineration without energy recovery. It is the least acceptable option under the waste management and resource recovery hierarchy.

Energy recovery—involves the conversion of waste materials into useable heat, electricity or fuel through processes such as combustion, gasification, pyrolisation and anaerobic digestion.

FO—food organics collection.

Food hub—food producers or another organisation which aggregates, distributes and markets food products directly to the consumer.

FOGO—food organics and garden organics collection.

Garden waste—includes grass clippings, tree, bush and shrub trimmings, branches and other similar material resulting from domestic or commercial gardening, landscaping or maintenance activities.

GO—garden organics collection.

Kerbside collection—the collection of household waste left at the kerbside for collection by local government collection services.

Municipal solid waste (MSW)—waste generated by households and waste collected by or for a local government. It includes waste generated from street sweeping, public rubbish bins, maintaining a public place and collection of large items from domestic premises by a kerbside collection service.

Organic processing—involves the recovery of putrescible wastes through activities such as anaerobic digestion, mulching, composting or vermiculture.

Putrescible—solid waste which contains organic matter capable of being decomposed by micro-organisms.

Recycling—is the process of extracting materials found in waste and converting them into useful products.

Recovered material—waste that has been diverted from landfill, including material that has been recycled, reprocessed or stockpiled for future use.

Recovery rate—the proportion of a waste stream that is recovered.

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Appendix 1—
Consultation participants

Advisian

AECOM

Airborn insight

Arup

Australian Organics Recycling Association (AORA)

Banana Shire Council

Barcaldine Regional Council

BeneTerra

BioBowser Renewable Technologies

BMI Group

Brisbane City Council

Bundaberg Regional Council

Cairns Regional Council

Candy Soil

Cassowary Coast Regional Council

Central Highlands Regional Council

Circular Beginnings/CQG Consulting

Circular Economy Pioneers

City of Gold Coast

Cleanaway

Cleanaway Daniels Yatala Medical Waste Services

Closed Loop

Container Exchange (COEX)

Cook Shire Council

CQG Consulting

CROWN University of Queensland

Curtin University

EDL

EnviroCom Australia

Enviroland

Environmental Science Matters

Fight Food Waste Cooperative Research Centre

GAASTA

GHD

Gladstone Regional Council

Global Commodity Centre Pty Ltd

Golder Associates

Griffith University

Gympie Regional Council

Hinchinbrook Shire Council

Infrabuild Recycling

Ipswich City Council

Isaac Regional Council

JJ's Waste & Recycling

Kriaris Recyclables

Livingstone Shire Council

LMS Energy

Local Government Association of Queensland

Lockyer Valley Regional Council

Mackay Regional Council

MAMS Group

Mandalay Technologies

Mareeba Shire Council

Moreton Bay Regional Council

MRA Consulting

MRA Environmental Gold Coast

Noosa Shire Council

North Burnett Regional Council

NuGrow

OzHarvest

Peak Services

Phoenix

Queensland Water Directorate

RDT/ReGroup

Redland City Council

Remondis Australia Pty Ltd

Resource Innovations Pty Ltd

ResourceHub

Rockhampton Regional Council

Scenic Rim Regional Council

Short Environmental Pty Ltd

Sims Metal Management Pty Ltd

SLR Consulting

SMEC

SOILCO Pty Ltd

SoilCyclers Pty Ltd

Somerset Regional Council

Tablelands Regional Council

Toowoomba Regional Council

Townsville City Council

United Waste Services

Veolia

Waste Recycling Industry Queensland (WRIQ)

WestRex

Whitsunday Regional Council

Woodmulching Industries

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