Western Australian

Waste Avoidance and Resource Recovery Strategy

Consultation paper

Disclaimer

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This document is available in alternative formats and languages on request to the Waste Authority.

About stakeholder consultation

The Waste Authority is seeking stakeholder and community feedback on this consultation paper to inform its review of the Western Australian Waste Strategy: *Creating the right environment*.

This is your opportunity to help shape the future of waste and recycling in Western Australia.

The Waste Authority will analyse submissions before making recommendations to the Minister for Environment.

You can provide feedback through the anonymous online survey or by making a written submission.

Written submissions will be treated as public documents. Your name will be published with the submission but your contact details will be withheld.

If you do not want your submission to be published, mark it as confidential, or specifically identify the parts that you consider confidential, and include an explanation.

The Waste Authority may request that a non-confidential summary of the material is also provided. Even if your submission is treated as confidential by the Waste Authority, the *Freedom of Information Act 1992* or other applicable written law may still require its disclosure.

The Waste Authority reserves the right to delete any content that could be regarded as racially vilifying, derogatory or defamatory to an individual or an organisation before publishing a submission.

How to make a submission

► Online survey

Access the online survey at https://www.surveymonkey.com/r/Waste_Strategy_Review

► Written submissions

Written submissions must be received by 5:00pm (WST) on **1 March 2018**. Late submissions will not be considered. Written submissions can be lodged by email to wastestrategyreview@wasteauthority.wa.gov.au.

Hard copies can be mailed to:

Waste Authority
C/- Department of Water and Environmental Regulation
Locked Bag 33
Cloisters Square
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► For further information contact us

Telephone: (08) 6364 6965
Email:
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Message from the Minister

Addressing the issue of waste is a high priority in the Environment portfolio of the McGowan Labor Government.

Waste, or rubbish, is what people throw away when they feel they no longer have a need for it. Almost everything we do creates waste – at home, in the community, socially and at our places of work.

The Earth's natural resources are precious and we owe it to future generations to use them wisely. Ensuring we get the maximum use out of the products and materials we consume can significantly reduce demand on our natural environment. Avoiding unnecessary consumption and reusing material will allow us to move to a low waste society. Our current behaviour will need to change if we are to achieve this.

The reality is that Western Australia's waste performance needs to be strengthened, and we intend to work with the Waste Authority, industry, the community and local governments to turn this track record around.

This Government has demonstrated its commitment to waste, introducing a number of strategic waste reform initiatives, including the introduction of a container deposit scheme and a ban on lightweight single-use plastic bags. We are also making regulatory amendments to require record keeping and annual reporting of waste and recycling data and amendments to waste categories prescribed in the *Environmental Protection Regulations1987*.

This Government recognises that the waste and recycling sector makes a significant contribution to our economy. A high performing waste sector can deliver substantial benefits to the economy – through jobs, investment and keeping materials in the productive economy. If it is not well managed, waste can also have negative impacts on human health and the environment.

The review of the waste strategy provides an opportunity for all of us to work together to achieve greater environmental outcomes, create employment and build businesses. It is a strategy for all Western Australians – including all levels of government, industry, the social enterprise sector and the community. Through shared responsibility and collaboration we can achieve more.

Hon Stephen Dawson MLC
Minister for Environment

Chairman's foreword

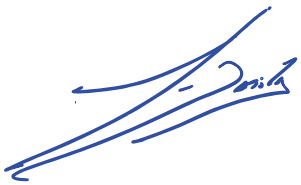
Western Australians are making progress with waste and recycling. While we are generating less waste and recycling more, there is still more work to be done to protect our unique environment from the impacts of waste and litter, and to maximise the economic benefits of good waste management.

The first Western Australian Waste Strategy: *Creating the Right Environment* was published in 2012 following stakeholder consultation and approval by the Minister for Environment under the *Waste Avoidance and Resource Recovery Act 2007*. Since then, total waste generation has reduced by 14 per cent, waste disposed to landfill is down 30 per cent and the amount of material recovered for recycling has increased.

Waste recycling in the commercial and industrial sector was 56 per cent in 2015–16, exceeding the State's 2015 target of 55 per cent. In the construction and demolition sector, the recycling rate increased to 57 per cent, up slightly from the previous year. However recycling rates for municipal solid waste (mainly household waste) in the Perth metropolitan region is currently at 36 per cent, which is much lower than acceptable.

The statutory review of the waste strategy provides an opportunity to reflect on our achievements and set the future direction for waste and recycling in Western Australia. This consultation paper on proposed amendments to the waste strategy has been developed for all Western Australians and the Waste Authority is seeking your views to ensure it broadly reflects the aspirations of the Western Australian community.

On behalf of the Waste Authority, I encourage you to have your say on the proposed amendments to the waste strategy to help shape how Western Australia manages its waste and recycling into the future.



Marcus Geisler
Waste Authority Chairman

About the Waste Authority

The Waste Authority is established under sections 8 and 9 of the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act). It is an agent of the State and its role is to provide advice and recommendations in relation to waste matters in accordance with the Act.

At least every five years, the Waste Authority is required to review the waste strategy and, where necessary, prepare a draft revised waste strategy for the Minister for Environment's consideration following a period of public consultation led by the Authority.

Apart from the WARR Act, there is also the *Waste Avoidance and Resource Recovery Levy Act 2007*. The Waste Authority is responsible for the administration of the Waste Avoidance and Resource Recovery Account to which at least 25 per cent of the forecast waste levy is credited.

The Waste Authority also drafts an annual business plan for the Minister for Environment's approval. The business plan, which needs to be consistent with the waste strategy, sets out the Waste Authority's objectives, priorities and financial projections for the next five financial years and the Waste Authority's policy for the application of moneys from the WARR Account.

It also details the programs the Waste Authority intends to deliver over the next financial year and any other matters that the Minister requires.

Why do we need a waste strategy?

Australia is one of the richest countries in the world yet it is losing the recycling race, ranked seventeenth among Organisation for Economic Co-operation and Development (OECD) nations.

Australians generate 2.2 tonnes of waste per person per year and our waste generation increased by 23 per cent between 2006–07 and 2014–15 (OECD, 2017). Waste is Australia's most rapidly increasing environmental and economic metric, according to the Australian Bureau of Statistics (ABS) (Pickin and Randell, 2017).

Western Australia's recovery rates are low compared to other Australian jurisdictions, and there are significant opportunities to create a better environment through improved waste and recycling practices and performance.

The Australian waste sector contributes over $10 billion a year to the economy. Materials worth hundreds of millions of dollars are lost to landfill each year (ABS, 2014). High performing waste and recycling systems in which materials are recovered, reused and recycled can reduce this economic impact. The creation of a circular economy can harness the economic value of materials and drive investment in infrastructure and jobs. The circular economy is explained later in this paper.

Reducing the amount of waste disposed of to landfill can generate significant economic opportunities for the Western Australian community. The National Waste Policy estimates that for each 10,000 tonnes of waste recycled, 9.2 full-time equivalent jobs are created compared to only 2.8 jobs for landfill (Environment Protection and Heritage Council, 2009).

The *Waste Avoidance and Resource Recovery Act 2007* requires the development of a long-term waste strategy for the state to drive continuous improvement in waste services, waste avoidance and resource recovery; and set targets for waste reduction, resource recovery and the diversion of waste from landfill.

Most importantly, waste can have a significant impact on the environment and human health through greenhouse gas emissions, pollution, biodiversity loss and resource depletion (Environmental Protection Authority, 2015). Reducing the volume of waste generated is the best way to manage those risks. It is also critical that where waste cannot be recovered it is treated or safely disposed of to landfill.

We know more can be done but we need your help to shape our next waste strategy and share the responsibility for its delivery.

The impact of waste

Decomposing waste in landfill generates methane, a potent greenhouse gas 25 times stronger than carbon dioxide. The waste and landfill sector is responsible for around two per cent of Australia's greenhouse gas emissions (Department of the Environment and Energy, 2017).

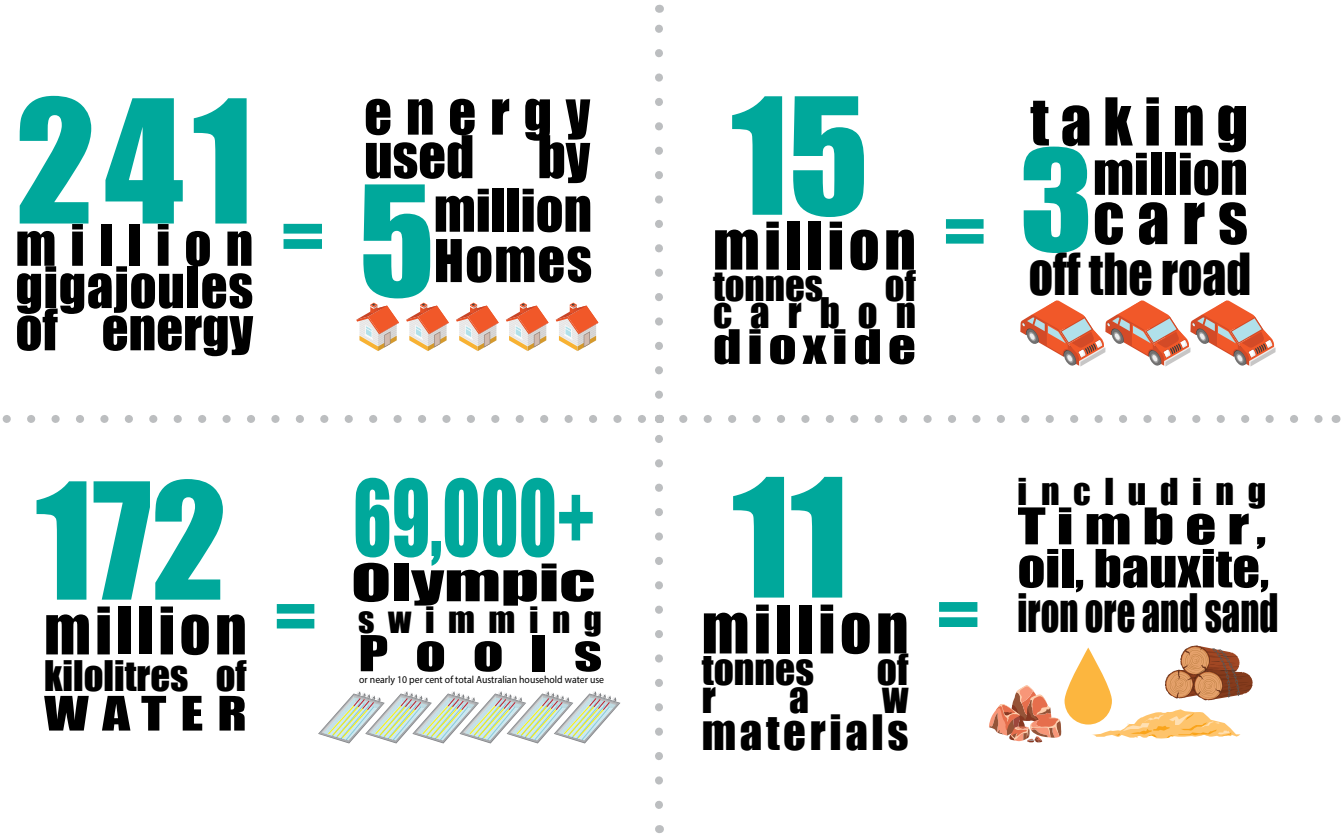
Poorly managed waste poses risks to human health and the environment. Leachate, liquid which passes through waste, can pollute groundwater and the environment. Emissions from landfill can pollute land, groundwater and the atmosphere. Exposure to waste chemicals and asbestos can harm human health. If not well managed, waste can attract vermin, generate odours and spread disease.

Illegally dumped waste and littering causes significant direct harm to human health and the environment and costs state and local government millions of dollars each year to manage, enforce and clean up.

The process of extracting raw materials also has direct impacts on our environment. For example, the use of limestone in road building requires the clearing of land which can impact on flora, fauna, water and groundwater, as well as contributing to greenhouse gas emissions.

The benefits of improved waste management

Avoiding waste generation and recovering waste reduces the demand for raw materials, energy and water. This protects and conserves resources for future generations. Based on performance in 2008–09, it is estimated that recycling in Australia saved:



Source: Net Balance, 2012

In 2010–11, the Australian waste management services industry was estimated to generate $10.4 billion of activity, and the value of recycled materials was estimated to be $5.4 billion (Australian Bureau of Statistics, 2014).

The benefits of moving towards a circular economy include a reduction in impacts on the environment and resource costs, and an increase in productivity and employment.

The waste reform agenda

Waste is an issue of significant public concern. A range of waste initiatives are currently underway to ensure waste management and resource recovery in Western Australia reflects best practice. In formulating reform proposals, waste management approaches of other jurisdictions were considered.

Through separate consultation processes, the Government has sought feedback on proposed reforms to address indefinite stockpiling of waste and associated financial and environmental risks and provide certainty to industry regarding waste management and the waste levy.

There are also opportunities to improve the operation of the waste levy as an economic lever and create a level playing field in the waste industry, with the aim that the levy does not act as a disincentive to reuse and recycling that is environmentally acceptable.

Regulatory amendments are proposed by the Government to strengthen the relationship between the waste framework and the environmental protection regime. Through robust and effective regulation that delivers on objectives and principles of the waste strategy and WARR Act we can support implementation of the waste hierarchy.

The Government has also identified the need to improve the quality and reliability of data on waste to inform regulatory decisions and policy to address inconsistent waste measurement methods and inaccuracy of volumetric survey method of waste measurement.

You can find out more about these waste reforms at:
www.der.wa.gov.au/our-work/consultation

About this consultation paper

The Government is seeking to make Western Australia into a sustainable low-waste society in which human health and the environment are valued and protected.

The Western Australian Waste Strategy: *Creating the Right Environment*, published in 2012, set a long-term strategic direction and identified priorities for waste in the State.

The lessons learned over the past five years show us that one of the most fundamental principles to becoming a low waste society is shared responsibility.

As a community, we need to build on progress to address challenges and take advantage of opportunities. Working together, we can improve our state's waste avoidance and recovery performance.

To prepare this consultation paper we looked at research and lessons learned from our progress in achieving the targets in the current waste strategy and experience elsewhere. It describes how waste is currently managed in Western Australia and summarises our waste performance.

This consultation paper also sets out proposed amendments to the waste strategy (page 16 onwards) that:

- rename the existing objectives as foundations;
- introduce new objectives;
- refine the focus and establish priority areas;
- introduce the circular economy; and
- establish the principles which we consider should underpin better practice approaches to waste management.

This consultation paper includes questions to seek your feedback and input on the above proposed amendments.

Your input is welcome on any aspect of the strategy, and a series of questions is included to guide feedback around key issues. Responses can be made through the online survey. Alternatively, if you wish to provide evidence and reasons to support your views, you can make a written submission.

The management of waste in Western Australia

Roles and responsibilities

We are all responsible for avoiding waste to reduce its generation (how much) and the fate of waste (whether it is recycled, processed or disposed of to landfill).

The United Nations provides leadership and guidance on waste management through the Global Partnership on Waste Management and the OECD Council has adopted a *Recommendation on the Environmentally Sound Management of Waste*.

The Commonwealth Government is responsible for national legislation, strategies and policy frameworks for waste to give effect to obligations under international agreements. State and territory governments regulate and manage waste, and influence behaviours in accordance with legislation, policies and programs.

Local governments provide household waste collection and recycling services, manage and operate landfill sites, and deliver education and awareness programs.

Industry and business, community groups, households and individuals provide services and influence others, and have responsibilities for their own waste behaviours.

State Government

The system steward and provides waste management leadership. It aims to create an environment which encourages businesses to invest in the waste and recycling sector to support a productive economy through levies and incentives. State government agencies can lead by implementing best practice waste management processes.

Waste Authority

Established under legislation to provide waste management leadership and advice to Government and the community, and deliver programs to avoid and recover waste. It administers the Waste Avoidance and Resource Recovery Account and reports on performance.

Western Australian Planning Commission and the Department of Planning, Lands and Heritage

Deal with urban, rural and regional land-use planning and land development matters, including those related to waste.

Department of Water and Environmental Regulation

Administers the *Waste Avoidance and Resource Recovery Act 2007*, *Environmental Protection Act 1986* and the *Waste Avoidance and Resource Recovery Levy Act 2007* and their regulations. It delivers strategic waste policy and legislation, environmental regulation, compliance and enforcement in respect of waste premises, levy collection, illegal dumping enforcement and provides services to the Waste Authority.

Local governments and regional councils

Deliver municipal waste services, provide information, infrastructure and incentives to encourage behaviour change and plan for the management of waste within their districts.

Commonwealth Government

Deals with compliance with international conventions, administers the *Product Stewardship Act 2011* and related schemes and works with jurisdictions to identify and address issues which warrant nationally consistent approaches. It also establishes forums for cross-jurisdictional collaboration to improve national waste policy outcomes.

Business and industry

Provide waste collection, sorting, processing (reuse or safe disposal) and information services and make investment and business decisions to provide waste services. They also generate waste as part of their production processes.

Community and charity groups

Lead the delivery of clean-up activities and awareness campaigns, as well as delivering community recycling enterprises, such as op-shops and Mission Australia's 'Soft Landing' enterprise which recycles used mattresses.

Individuals

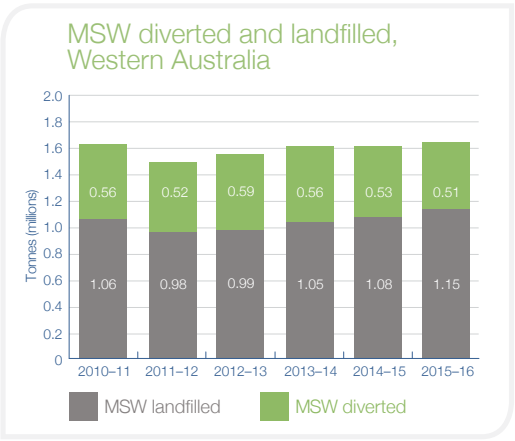
Make personal decisions that impact on the generation of waste and the extent to which materials are reused and recycled.

Waste streams

Most jurisdictions, both in Australia and internationally, categorise solid waste into three streams.

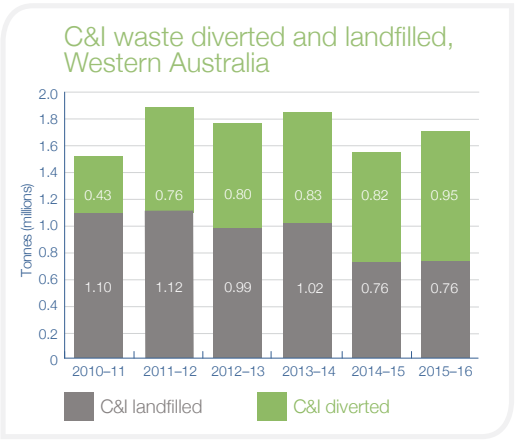
Municipal solid waste (MSW)

Municipal solid waste is primarily waste collected from households and local governments through waste and recycling collections. It includes biodegradable material, recyclable materials such as bottles, paper, cardboard and aluminium cans, and a wide range of nondegradable material including paint, appliances, old furniture and household lighting.



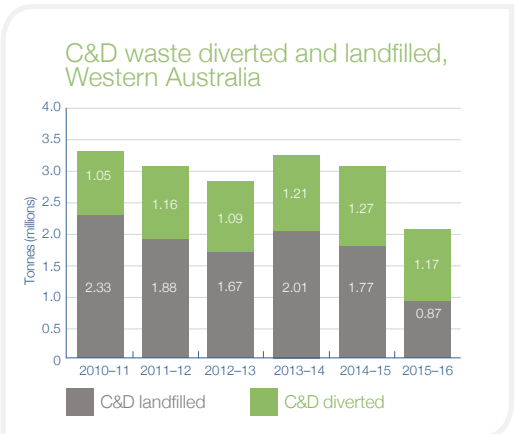
Commercial and industrial (C&I) waste

Commercial and industrial waste is waste that is produced by institutions and businesses. It includes waste from schools, restaurants, offices, retail and wholesale businesses and industries including manufacturing.



Construction and demolition (C&D) waste

Construction and demolition waste refers to waste produced by demolition and building activities, including road and rail construction and maintenance and excavation of land associated with construction activities. The C&D waste stream usually covers only some of the generation, disposal and recycling of C&D wastes, these materials can also be found in the MSW and C&I streams.



Our waste performance

Western Australians generate more municipal waste per capita than most comparable nations in the OECD and our performance in waste and recycling also lags that of most other Australian jurisdictions.

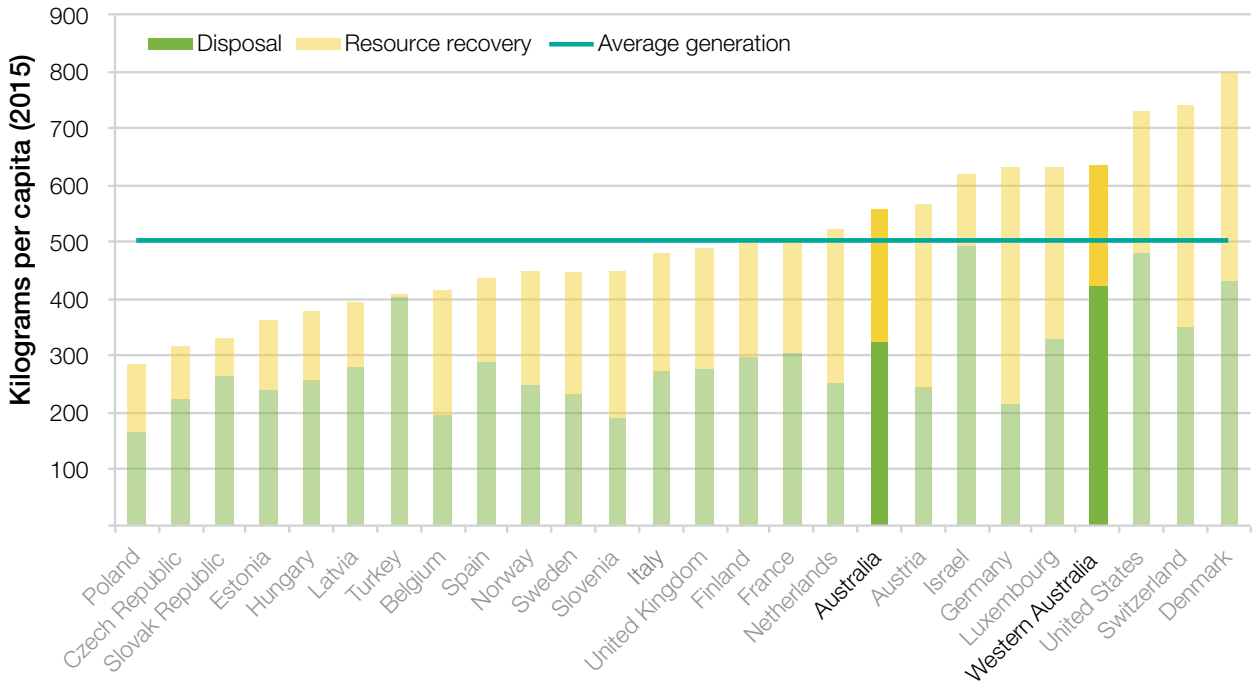


Figure 1: Municipal waste generated, disposed and recovered per capita, OECD member countries and Western Australia (OECD, 2017) (USA data is 2014)

National data for 2014–15 shows that on a per capita basis, Western Australians generate more waste than people in other Australian states and territories (2,623 kilograms per capita per annum), dispose of the second highest amount of waste to landfill (1,358 kilograms per capita per annum) and have the equal second lowest rate of resource recovery (48 per cent) (Pickin and Randell, 2017).

Although Western Australia's geographical and economic characteristics contribute to these differences, we can do better.

Western Australia is a vast state with a relatively small centralised population and markets. This, coupled with its distance to end markets, can impact investment in waste and recycling infrastructure.

Seventy-four per cent of the state's population lives in the Perth metropolitan region which accounts for 75 per cent of the waste material recovered in 2015–16 (ASK Waste Management, 2017).

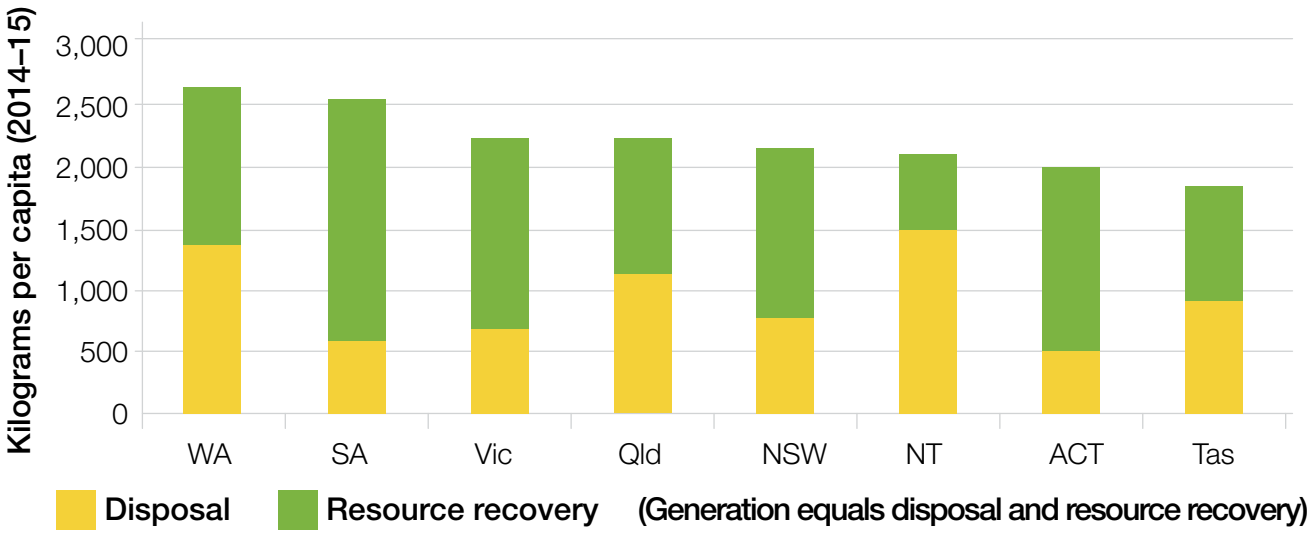


Figure 2: Waste disposal and resource recovery by state (Pickin and Randell, 2017)

It's not all bad news though. Western Australia's waste generation, disposal of waste to landfill and resource recovery rates are trending in a favourable direction. This has been driven by increases in the waste levy, and supported by government programs and initiatives, industry investment in infrastructure and collection systems and increased community engagement and participation in managing waste and recycling.

	2010–11	2015–16	Percentage change
Waste generation			
Total	6.53 million tonnes	5.42 million tonnes	↓ 17%
Per capita	2,764 kg	2,081 kg	↓ 25%
Waste to landfill	4.49 million tonnes	2.79 million tonnes	↓ 38%
Resource recovery	2.04 million tonnes	2.63 million tonnes	↑ 29%

Table 1: Changes in waste generation and landfill in Western Australia, 2010–11 and 2015–16 (ASK Waste Management, 2017)

Further detail on Western Australia's waste performance is available at www.wasteauthority.wa.gov.au/programs/data.

Waste strategy framework

The circular economy

Many jurisdictions, including the European Union, are adopting circular economy principles to guide economic and environmental policies and practices. Closer to home, in early 2017, South Australia released a report on the *Benefits of a Circular Economy* to encourage the development of a circular economy to achieve economic growth while producing no or minimal waste and pollution.

Building on the waste hierarchy, the circular economy aims to limit waste by moving away from a linear 'cradle to grave' model of material and energy use.

A circular economy is a regenerative system in which resource input and waste, emissions, and energy leakage are minimised by slowing, closing, and narrowing material and energy loops (Geissdoefer, 2017). This is achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling (Geissdoefer, 2017) which contributes to waste avoidance.

A circular economy is self-sustaining, relying on renewable energy and keeping material resources in use, or 'circulating', as long as possible. It extracts the maximum value from resources while they are in use, then recovers and regenerates products and materials (Waste and Resources Action Programme (WRAP), 2015).

The circular economy recognises the value of the environment and the economic impact of environmental degradation. It acknowledges that keeping materials in the productive economy creates employment, investment and economic opportunities.

Waste management plays a central role in the circular economy: it determines how the waste hierarchy is put into practice.

The waste hierarchy

The circular economy builds on the principles inherit in the waste hierarchy which prioritises options for the efficient use of resources, and it is set out in the objects of the *Waste Avoidance and Resource Recovery Act 2007*.

The highest priority, **avoiding** unnecessary resource consumption, thereby reducing the generation of waste, encourages the community, industry and government to reduce the amount of raw materials extracted and used.

The second priority, **resource recovery**, keeps materials in the productive economy and benefits the environment by decreasing the need for new materials and waste absorption.

Finally, the waste hierarchy recognises that some types of waste, such as hazardous chemicals or asbestos, cannot be safely recycled and direct treatment or **disposal** is the most appropriate management option.

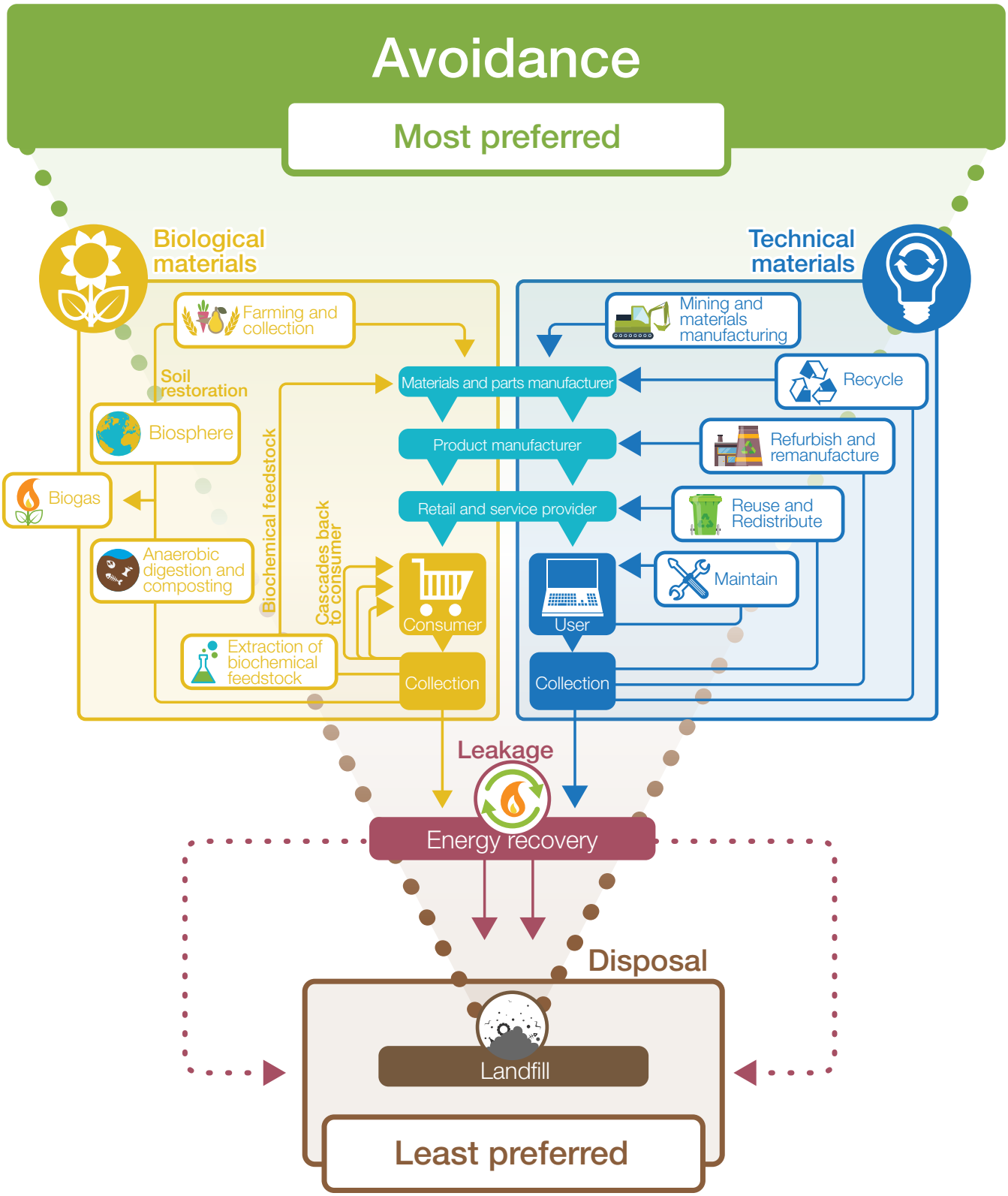


Figure 3: The waste and resource management hierarchy and the circular economy (adapted from the Ellen MacArthur Foundation, 2015)

The Waste Avoidance and Resource Recovery Act 2007 *and the* Environmental Protection Act 1986 *identify principles that we believe should underpin the waste strategy.*

Principles

Principle 1: Intergenerational equity

Western Australians ensure that the health, diversity and productivity of our environment is maintained or enhanced for the benefit of future generations.

Principle 2: Shared responsibility and system stewardship

The state's environmental resources belong to all Western Australians and everyone has a role to play in protecting them. Effective system stewardship requires leadership by government in setting strategic objectives and working collaboratively across all levels of government, industry and the community to achieve those objectives.

Principle 3: The economic, environmental and social costs of waste generation and disposal are considered in decision-making

The true cost of waste must take into account the negative economic, environmental and social costs to government, business and the community. The cost associated with the impact of waste on the environment and human health and the scarcity of raw materials and landfill sites close to major population centres need to be considered. Transport costs and the cost of landfill remediation also need to be considered. Collectively, these are a great expense to the community and governments.

Principle 4: Behaviour change to minimise waste generation

Good management of resources benefits our society, economy and environment. Everyone should minimise the generation of waste and its discharge into the environment.

Principle 5: The waste hierarchy

Priority is to be given to the avoidance of unnecessary consumption and waste generation then recovering resources through reuse, reprocessing, recycling and energy recovery. Disposal of waste to landfill should be used as a last resort.

Principle 6: Continuous improvement

To drive continuous improvement, Western Australia's waste management performance should be benchmarked against the waste strategy objectives and targets, and the performance of others.

QUESTIONS

Have the correct principles been identified?

Are there other principles that you consider should be included?

Foundations

We will continue to see global advances in technology and improvements in waste management, along with the adoption of new approaches, such as the circular economy. We have identified that planning, engagement, regulation, better practice guidance, economic incentives and data collection and measurement are essential foundations for the successful implementation of the waste strategy.

Planning

Waste collection and processing systems vary across Western Australia limiting the potential for economies of scale and reducing opportunities for the coordination of waste for processing. Waste planning, particularly that undertaken by metropolitan and non-metropolitan local governments and regional councils, should be aligned with the waste strategy. There is no 'one size fits all' in waste management. In Western Australia, our vast distances and small population will continue to influence decision-making.

Land use planning impacts the delivery of waste services and infrastructure, and affects investment decisions. Waste management facilities are considered essential infrastructure in the Western Australian Planning Commission's *State Planning Strategy* (WAPC, 2015). Planning is required to ensure waste infrastructure needs are understood and to support increased recovery of resources from waste. Good planning also reduces environmental risks from waste facilities including landfills. It can also reduce travel time and distances, which is particularly important considering the large number of truck movements involved in transporting waste.

Infrastructure includes the 'hard' infrastructure (including land, buffers and transport networks) required to process waste and the 'soft' infrastructure (including the structures of government and regulation that apply to the management of waste). The right waste management infrastructure enables improved effectiveness and efficiency.

Engagement and education

Through community, industry and stakeholder engagement and education we can embed the behaviour change required to reduce our waste generation and increase resource recovery.

A range of programs is needed. State and local government, with the support of community and industry based groups, work collaboratively to deliver key messages that promote waste avoidance and provide information so that individuals and entities know what to do to make better waste decisions.

Evaluation of engagement and education programs identifies where additional work is required and ensures effectiveness. Similarly, the acknowledgment of success encourages the achievement of the outcomes of the waste strategy.

Regulation, compliance and enforcement

Effective regulation, including compliance and enforcement, is critical to ensuring that the environment and human health are protected. It also provides a level playing field to ensure that responsible operators are not competitively disadvantaged.

The regulatory framework provides the waste and recycling sector with clear rules and guidelines within which to operate. Western Australia's regulatory framework should be subject to ongoing review to ensure that it remains current, appropriate and addresses any regulatory issues or gaps.

This review should include consideration of regulatory approaches that have been effective elsewhere.

The waste levy influences the decisions of the waste sector and can lead to positive outcomes such as increased resource recovery. It may also lead to unintended consequences such as illegal dumping. Enhanced compliance and enforcement maximises the positive impact of the waste levy as an economic incentive to reduce disposal of waste to landfill.

Better practice guidance

The identification of better practice waste collection and processing systems, the development of guidelines and benchmarks, and support for their adoption can drive improvement. For example, the State Government's Better Bins program provides funding support for source separation through improved kerbside services.

Guidance improves waste and recycling performance by assisting local governments and the waste sector to adopt better practices that improve business processes and performance efficiency.

Knowledge and data

Knowledge and understanding about why change is necessary and how to implement change can drive waste related behaviour change and improve our waste management performance. Good data can contribute to building such knowledge.

Waste and recycling data are collected and reported by government, industry, and non-government organisations for a range of purposes.

Data supports evidence-based policies, informed decision making and investment. Reliable data are important to understanding the performance of the waste and recycling industry, and measuring Western Australia's progress against its waste generation and resource recovery targets and to monitor trends.

Economic incentives

Incentives can provide the driving force for changed waste behaviour and improved outcomes.

The market is a major determinant of economic incentives in the waste sector. Market prices provide incentives to the recycling industry that influence which waste materials they process. Similarly, market prices for goods can incentivise consumers to consume or not consume recycled products.

To support the objectives of the waste strategy, there will sometimes be a need to provide economic incentives for action that complement those provided by markets. Such incentives can be positive, such as funding, or negative, such as penalties and compliance actions.

QUESTIONS

Are these the right foundations for our waste strategy?

Are there others that you consider should be included?

Based on experience elsewhere, we have identified that there are significant opportunities to improve Western Australia's waste and recycling performance to generate benefits for our economy, environment and community.

Western Australia's opportunities for improvement

Valuing waste

Waste has an economic value. When the full costs and benefits of waste are not realised, waste represents a loss to the economy. The circular economy recognises and aims to quantify the benefits of keeping resources 'circulating' in the economy.

Through quantifying the full costs and impact of waste – such as the value of materials, benefits to jobs and investment, and cost of waste littered, illegally dumped and disposed of to landfill – we can ensure that the waste management system delivers direct and measurable benefit to our economy.

Collaboration and shared responsibility

Local governments and the private sector play a lead role in managing waste, particularly at the point of recovery and disposal. The choices made by each of us affect waste generation and drive resource recovery. Achievement of the waste strategy targets requires a holistic approach which extends across the whole economy, and engages stakeholders – including industry, government and consumers – across a product's life cycle.

Engaging users of the waste system, providers of services and experts, led by state government, to understand, explore and change the waste system would support delivery of the waste strategy.

Harnessing markets

Waste and recycling decisions are primarily market based. Efficient markets require competition, access to high quality information to inform decision making and certainty to support investment decisions.

Government can harness markets through policy and regulatory settings that provide investment certainty, address market failure and foster competition, and educate the community.

Removing barriers

Identifying and removing real and perceived barriers to waste reduction and recycling through improved procurement policies and the development of appropriate guides and standards can lead to reduced waste and increased recycling.

Technology and innovation

Technology can improve waste and recycling performance across the whole sector. Technology can help the community recycle, improve regulation and the efficient management of waste processing by businesses and local governments.

Waste management systems must adapt to take advantage of rapidly changing technologies and new material sorting and recovery infrastructure as it becomes available.

Waste disposal

Recovering materials, particularly in regional and remote areas, is a significant challenge. Recovery is preferred where, having regard to the full life cycle cost of waste, it delivers net benefits to the state. Where recovery does not deliver a net benefit, alternatives such as high performing landfills or alternative technologies and uses should be considered.

At present, the majority of waste generated in Western Australia is disposed of to landfill. Landfills therefore remain an important part of our waste management system. High performing landfills can complement resource recovery and protect the environment through good on-site practices that divert recoverable materials and pricing which reflects the full costs (economic and environmental) of disposal.

Landfills must be well sited, designed and managed at all stages of their life.

QUESTIONS

Are there other opportunities for Western Australia to improve its waste performance?

Scope of the strategy

The *Waste Avoidance and Resource Recovery Act 2007* defines waste to include liquid, solid, gaseous or radioactive material which is discharged into the environment or prescribed by the regulations to be waste.

The scope of the current waste strategy is materials managed through solid waste and recycling management systems because it aims to reduce the disposal of waste to landfill. In a circular economy there is little or no disposal activity.

The waste strategy could be broadened to cover other types and sources of waste.

Hazardous wastes include spent radioactive medicines, potentially infectious materials from hospitals and asbestos from demolition sites.

Hazardous and non-recoverable wastes are an important priority area. Western Australia's robust legislation and regulation provides a sound basis for the management of hazardous wastes. These materials should continue to be a key focus.

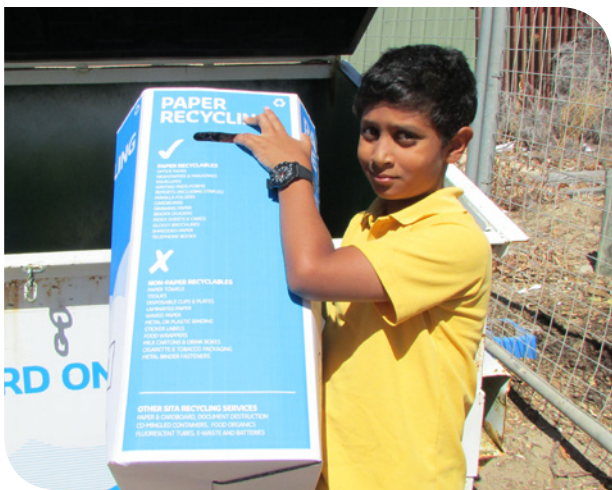
QUESTIONS

Should the scope of the waste strategy be broadened to include other types and sources of waste?

International and national initiatives

Western Australia is not alone in the waste problems it faces. The management of some types of waste require an international or national approach. Western Australia collaborates with, learns from and shares its knowledge and experience with international and national colleagues. We consider that Western Australia should continue to be involved in these waste initiatives including:

- The **Basel Convention** which is an international treaty designed to reduce the movement of hazardous waste between countries with a view to protecting human health and the environment.
- The **Minamata Convention on Mercury** which is a global treaty to protect human health and the environment from the adverse effects of mercury.
- The **National Waste Policy** and the ***Product Stewardship Act 2011*** which support national approaches to problem waste streams. A range of products and materials, such as televisions and computers, paint, tyres and packaging, have been identified as national priorities and are being managed collaboratively by governments and industry. Waste plastics and microbeads, oil containers, batteries, photovoltaic systems and food waste are also being addressed.
- The **Australian Packaging Covenant** and the **Environment Protection (Used Packaging Material) Measure** which are national programs aimed at reducing generation and encouraging the re-use and recycling of used packaging materials.



Priority materials

We believe that the waste strategy should focus on reducing the generation of waste materials that Western Australians produce in the highest volume, and those that have the potential to be recovered for reuse.

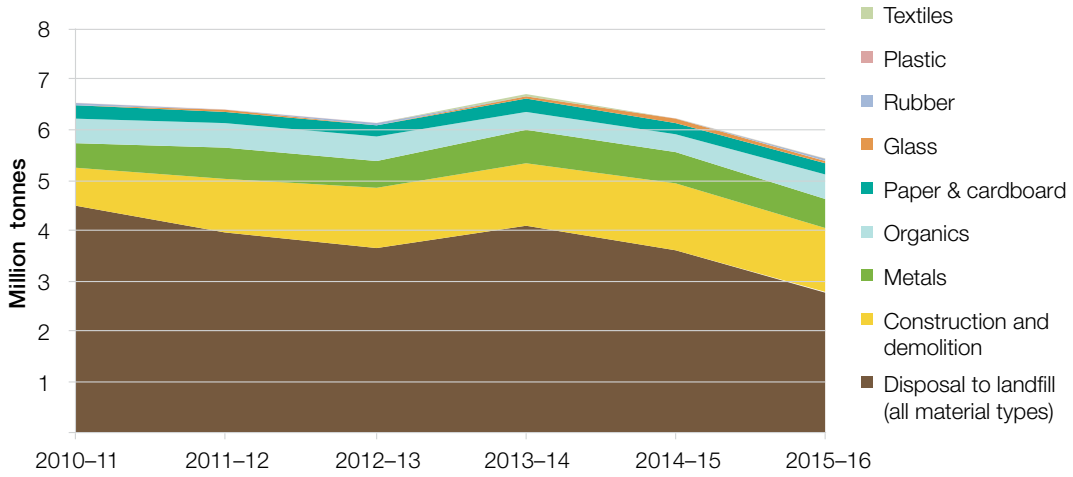


Figure 5: Landfill and recycling in Western Australia by material type 2010–11 to 2015–16 (ASK Waste Management, 2017)

By weight, more than 90 per cent of the waste Western Australians generate is made up of:

- **Construction and demolition materials:** concrete, asphalt, rubble, bricks, sand and clean fill
- **Organics:** food and garden waste
- **Metals:** steel, non-ferrous metals, packaging and containers
- **Paper and cardboard:** office paper, newspaper and magazines
- **Glass:** packaging and containers
- **Plastics:** packaging and containers
- **Textiles:** clothing and other fabric based materials

We already recover high volumes of metal and glass (Net Balance, 2012) but we could do better at recovering:

- **Construction and demolition materials:** concrete, asphalt, rubble, bricks, sand and clean fill
- **Organic waste:** food and garden waste
- **Paper and cardboard:** office paper, newspaper and magazines
- **Plastics:** packaging and containers

QUESTIONS

Have the highest priority wastes for Western Australia been identified?

How will market and processing based factors affect the inclusion of these priority materials in the waste strategy?

Waste strategy objectives

The European Parliament has issued a directive that the first objective of any waste policy should be to minimise the negative effects of the generation and management of waste on human health and the environment (EU, 2008). We agree. We also believe that our waste strategy should aim to reduce the generation of waste and increase the recovery of resources, in line with the principles of the circular economy and the waste hierarchy.

We have identified three objectives for the waste strategy:

1. Minimise environmental impact

The transport, processing, storage and disposal of waste impacts on the environment. Reducing waste generation and increasing resource recovery can minimise environmental impacts and risks.

Pollution can result from poorly managed waste infrastructure (including landfills and recycling facilities) and poor waste behaviours such as littering and illegal dumping.

Regulation, illegal dumping prevention and enforcement, litter prevention and the management of problem wastes are priority focus areas to minimise environmental impacts from waste.

2. Reduce generation

In 2014–15, Western Australia generated 2.9 million tonnes of construction and demolition materials, 1.4 million tonnes of organic waste (including food and garden waste), 0.8 million tonnes of waste metals, 0.6 million tonnes of waste paper and cardboard and 0.4 million tonnes of plastic waste (Pickin and Randell, 2017).

We believe that Western Australians should not generate more waste than the national average.

3. Increase recovery

The recovery of resources from waste is impacted by the availability of materials for recovery, the ability to separate materials in the waste stream, processing capacity and technology, processing costs, the value of recovered materials, and access to markets.

We can improve our rates of recycling, saving valuable materials and creating jobs through better procurement, collection and management practices.

QUESTIONS

Are these the right objectives for the waste strategy?

Western Australia should manage and monitor the generation, recovery and disposal of its waste, with a focus on minimising risk to the environment and human health.

Without regulation to govern waste management activities, waste could end up in places that have the potential to pose significant risks to human health or the environment.

Waste that ends up in water can change its chemical composition, affecting ecosystems and causing harm to organisms that rely on it.

Hazardous chemicals that get into the soil can harm plants and animals. If humans eat plants and animals that have been in contact with polluted soils, there can be negative health impacts.

Poor waste management practices can lead to land and air pollution, causing respiratory problems and other adverse health effects.

Leachate is the liquid that forms as water moves through contaminated areas, it forms a harmful mixture of chemicals that can result in hazardous substances entering surface water, groundwater or soil.

► Western Australia's performance

The State Government has primary responsibility for the regulation and administration of waste, including planning for waste management and waste avoidance, minimisation and reuse, licensing and regulation of waste transport, storage, treatment, resource recovery and disposal, and managing the impacts of waste management activities. The government has comprehensive legislation and policy in place to protect the environment and conserve our natural resources.

Western Australia's regulatory framework licenses prescribed premises and monitors compliance with licence conditions to minimise the risk of impacts to the environment and public health from waste-related activities.

The policy and management approaches applied are consistent and commensurate to the environmental risks posed by waste facilities, transportation and waste disposal practices.

► Effective approaches

Case study: Household hazardous waste program

Household hazardous wastes are products used in and around the home that are flammable, toxic, explosive or corrosive. If not disposed of correctly, these wastes can pose a threat to human health and the environment.

The household hazardous waste program is delivered in collaboration by the State Government, local governments and the Western Australian Local Government Association (WALGA).

It provides local governments and regional councils with funding to assist with the collection, storage and disposal of these wastes. It is funded by the State Government through the waste levy, and is administered by WALGA.

The Household Hazardous Waste program currently has eight metropolitan and five regional permanent facilities where householders can drop off unwanted household chemicals at no charge.

The environmental risks and impacts from waste activities can be minimised by:

- **Improving the design of products** to extend product life and minimise the generation of problem waste.
- Regularly reviewing and **updating regulatory approaches** taking into account best available information.
- **Improving services and infrastructure** for waste disposal or recovery, including appropriate siting, design and operation.
- **Improving consumer and producer behaviour** to avoid the generation of problem wastes, reduce littering and illegal dumping, and increase safe disposal and recovery.
- Funding programs to support the **reduction and safe disposal of problem wastes**, reduce littering and illegal dumping.

QUESTIONS

Do you have any other ideas about how we can minimise environmental risks and impacts from waste?

► What we are currently doing

In line with the current waste strategy we are:

- Applying the **waste levy and enforcing compliance** at waste premises under the waste avoidance and resource recovery legislation and the *Environmental Protection Act 1986*.
- Detecting, investigating and prosecuting **illegal dumping**, and educating the community, industry and government to understand the impacts, and reduce the incidence, of illegal dumping.
- Implementing the **litter prevention strategy** to reduce littering and manage its impacts.
- Providing for the **collection, storage and disposal of hazardous waste** generated by households.
- **Reviewing and updating the regulatory framework** for waste to ensure it is appropriate and reduces the environmental impacts and risks from waste management.
- Introducing a **container deposit system** to change behaviour, increase recycling and reduce littering.
- **Banning single use lightweight plastic bags**, which are harmful to the environment.

► What else can we do?

We believe that we should also:

- **Expand the Illegal Dumping Program**. New focuses could include working with land owners and managers to build their capacity to tackle dumping and improving data collection to allow program resources to be better targeted. A community engagement and education campaign could be implemented to educate the community on what illegal dumping is and raise awareness of its impacts.
- **Waste classifications and definitions** should be **reviewed and updated** to reflect current knowledge to ensure waste materials are managed according to their risk and are treated and/or disposed of appropriately.
- Ensuring the **equitable application of the waste levy** and measuring its effectiveness to provide a level playing field.
- We should develop a legislative framework to **encourage the use of waste-derived materials**, including **product specifications**, to increase reuse and decrease the environmental impacts.
- We should develop **better practice guidance and standards for waste facilities, waste streams and waste-derived products** to inform industry practice, leading to improved services, higher recovery and improved environmental outcomes. Key focus areas include:
  - ► vergeside and drop-off services provided by local government
  - ► the siting, design, building and operation of waste facilities (including landfills) to provide clarity to proponents, and manage legacy risks when waste facilities are closed
  - ► standards for waste-derived products (compost, fill and treated wastewater) to drive the use of these products.
- **Landfill infrastructure and practices** should be assessed to inform for the development of guidance to improve landfill management.
- Approaches to the **management of hazardous waste** including controlled and liquid waste should be reviewed.
- Measures to encourage the **use of recycled products** to reduce the risks and impacts from stockpiled waste should be implemented.

QUESTIONS

Are there other actions that should be undertaken to minimise environmental impact?

What should state and local governments do? Business and industry? Community groups? What will you do?

► Targets

Reducing waste generation and increasing resource recovery will contribute to protecting the State's environment. The risks of environmental impact from the management and disposal of those wastes that remain need to be actively managed.

Identifying quantitative targets for this objective is not straightforward. The baseline data required to develop targets for this objective is not available. The proposed amendments to the waste strategy encourage greater focus on management of the environmental risks of waste. Over time, we propose to identify baseline data to inform the development of targets for the management of the environmental risks of waste.

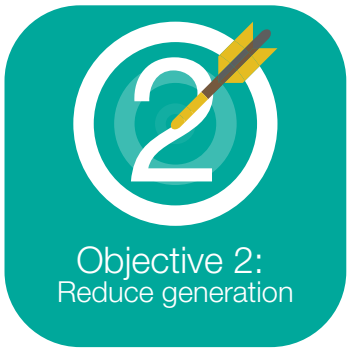
Where relevant quantitative targets cannot be identified, qualitative targets are proposed:

- Collect and report data on the incidence, impact and outcomes of the illegal dumping program.
- As set out in the *Litter Prevention Strategy for Western Australia 2015–2020*, achieve a 25 per cent reduction in 2012–13 littering levels by 2020.
- Facilitate the appropriate separation, collection, transport, management and disposal of problem wastes.
- Ensure that regulatory and non-regulatory mechanisms are consistent, appropriate and reduce the environmental impacts and risks from waste management.

QUESTIONS

What targets do you consider should be used for this objective?

Western Australians should reduce waste generation and change their decisions and behaviours to avoid unnecessary consumption.



It is estimated that almost 99 per cent of everything we buy becomes waste within six weeks of purchase (Environment Victoria, 2016). To protect our environment, we all need to reduce the amount of waste we produce.

Waste is a social and ethical issue as well as an economic and environmental one. Our consumption habits, purchasing choices and disposal practices are part of the problem. As consumers, we need to think about how we can get more out of less.

Our individual choices can support or hamper the circular economy. We can make choices that avoid or reduce the generation of waste.

► Western Australia's performance

In 2014–15, on average each Western Australian generated 2,623 kilograms of waste. Western Australia had the highest rate of waste generation in Australia per capita, 19 per cent above the national average.

We believe that Western Australians should not generate more waste per capita than the national average.

► Effective approaches

Case study: Plastic Free July

Plastic Free July was developed by the Western Metropolitan Regional Council in 2011, commencing with 40 participants. The campaign has since been adopted globally with an estimated two million participants from 159 countries.

Plastic Free July aims to raise awareness of the problems associated with single-use disposable plastic and challenges people to do something about them. In 2017 around 200,000 Western Australians participated in the challenge resulting in 4,850 tonnes of waste avoided.

In launching the 2017 event, the Minister for Environment said:

> There are a number of ways we can all help reduce waste every day including bringing your own reusable shopping bags, remembering reusable coffee cups and water bottles, and avoiding pre-packaged fruit and vegetables. Plastic Free July is a fantastic homegrown challenge and is a great way to avoid landfill, reduce our eco-footprint and protect the ocean from plastic pollution.

Plastic Free July co-founder Rebecca Prince-Ruiz said:

> A staggering 100 kilograms of plastic packaging – including plastic containers, water bottles, plastic bags or disposable coffee cups – are used by householders every year. Plastic Free July is creating conversations and education around the issues of plastic pollution and more importantly has resulted in a wave of community action.

Objective 2

Research shows us that reducing waste generation relies on efficient production processes, and product design that minimises material use and packaging. Some examples of issues that influence, and practices that minimise, waste generation include:

- Inbuilt obsolescence, inefficient use of materials, poor quality products with short life spans, and products that cannot be repaired or maintained all contribute to increased resource use and waste generation. **Choosing products designed for longevity and serviceability** can help to avoid waste generation.
- Inefficiencies in the food supply chain from producer to consumer can increase packaging and food waste. **Improved food supply chain processes** generate less waste.
- Single use and disposable packaging, containers and other products are often cheap, convenient and readily available. Their widespread use creates significant plastic, paper, cardboard and metal waste. **Reducing the availability and convenience of 'disposable' products and choosing low-waste alternatives** can help to generate less waste.
- Building layout and design, choice of materials and the staging of construction processes can contribute significantly to the generation of construction and demolition waste. **Improved building design and construction planning** can minimise waste generation.
- Consumers and producers contribute significantly to the generation of waste. Increasing **knowledge and awareness** of the impacts of waste and strategies for avoiding waste generation can improve attitudes towards waste avoidance and motivate behaviour change.
- **Incentives and disincentives** reduce waste generation. They should be regularly reviewed to ensure they remain appropriate and effective.

QUESTIONS

Do you have any other ideas about how we can reduce our waste generation?

► What we are currently doing

In line with the current waste strategy we are:

- **Implementing a ban on single-use lightweight plastic bags** and promoting the benefits of avoiding waste plastic.
- Changing behaviour to avoid waste and increase recovery of materials through **community education and communication**.
- Supporting schools to plan, implement and maintain projects to reduce waste generation such as composting and worm farming (**Waste Wise Schools**).
- Supporting **charitable organisations** that operate clothing and other goods recycling services to avoid waste through reuse and recycling.
- Supporting **community and industry initiatives** that deliver waste avoidance and help achieve the waste strategy targets.

► What else can we do?

We believe that we should also:

- **Lead collaboration between state government agencies** that undertake construction activities such as road building and land development to reduce the generation of construction and demolition waste and promote the reuse of recycled materials.
- **Develop industry guidance** to reduce waste generation.
- Encourage **behaviour change to reduce food waste** through education about its impacts.
- Improve **community awareness and understanding** of waste generation issues and solutions.
- **Engage with decision makers and opinion leaders** to shift thinking from 'what's in it for me' to a 'community benefit' focus.

QUESTIONS

Are there other actions that should be undertaken to reduce waste generation?

What should state and local governments do? Business and industry? Community groups? What will you do?

► Targets

Our proposed targets would bring Western Australia's waste generation in line with the national average.

	2025	2030
Reduction in waste generation per capita compared to 2014–15	10%	20%
Waste generation (kilograms per capita)	2,361	2,098

QUESTIONS

Are these the right targets for Objective 2 of the waste strategy?

Western Australia should increase resource recovery to optimise the economic benefits derived from reuse, recovery and recycling.

The United States Environmental Protection Agency defines resource recovery as the extraction of useful materials including paper, glass and metals that can be reprocessed for re-use from solid waste. Resource recovery is important to the environment and protects our limited natural resources. It can also be cost effective by decreasing the amount of waste disposed of to landfill and reducing the amount of space needed for landfills.

The waste hierarchy establishes a priority order from prevention, reuse, recycling through to disposal to landfill.

The way we collect and manage our waste can lead to high rates of recycling and valuable materials finding their way back into the economy, or to an inefficient system where most recyclable waste ends in landfills, with potentially harmful environmental impacts and significant economic losses (EU, 2015).

► Western Australia's performance

Western Australia does not perform well in the recovery of resources.

In 2015–16, it was estimated that 57 per cent of construction and demolition waste, and 56 per cent of commercial and industrial waste was diverted from landfill. Both these streams have shown significant improvements compared to 2010–11 levels. The municipal solid waste stream in the Perth metropolitan region has shown no general improvement over this time and in 2015–16 recovery was 36 per cent compared to 39 per cent in 2010–11.

Construction and demolition waste makes up more of the waste stream in Western Australia than the national average, and its recovery lags behind the majority of states (Pickin and Randell, 2017). As a result, there is an opportunity to increase the recovery of construction and demolition materials.

Organic materials, including garden and food wastes, and paper and cardboard, make up around two thirds of the municipal solid waste stream. More organic waste needs to be recovered to improve municipal solid waste performance.

While there have been improvements in the recovery of construction and demolition materials, more can be done to increase recovery of organic waste, paper, cardboard and plastics.

Objective 3

▶ Effective approaches

Case study: Richgro

Richgro's enclosed anaerobic digestion plant in Jandakot is turning food waste that would otherwise go to landfill, into renewable energy and power that is used on site and exported back into the grid. Using the latest proven and safe technologies, the plant works like a live stomach in breaking down the food waste. Managing Director Geoff Richards said:

> The organic waste is simply and naturally broken down into biogas (carbon dioxide and methane) and organic fertiliser called digestate. We recycle solid and liquid waste from nearby food processing plants, supermarket wastes and other food suppliers, right down to out-of-date or damaged beverages (in aluminium cans or plastic bottles which are then also recycled).

The plant can process an average of 137 tonnes of commercial and industrial organic waste per day or 50,000 tonnes per year. It is produces an average of 60,000 litres of biofertiliser per day.

With $500,000 funding from the State Government, $1.1 million from the Commonwealth Government and a $2 million loan from Clean Energy Finance Corporation, the plant is part of a national focus on renewable energy, low-emission technology and energy efficiency.

The Richgro anaerobic digestion plant contributes to Western Australia's move towards a more circular economy by diverting organic wastes from disposal into value-added products that replenish local soils and produce renewable energy.

The factors that influence the recovery of construction and demolition materials, organic waste, plastics, and paper and cardboard include:

- Availability, cost and access to services and infrastructure are important in increasing resource recovery for the community and industry. **Services and infrastructure** are required to support increased recovery of resources.
- Knowledge and attitudes can be a barrier to increased recycling and use of recycled products. **Behaviour change** that increases demand for recycled products and decreases the contamination of recyclable waste will lead to increased recovery of resources.
- Process and product design can recover more materials from the food supply chain, the building industry and packaging. **Improved product design, longevity and serviceability** result in increased use of recycled materials in product design and support greater resource recovery.

- **Improved building and construction processes** can promote source separation and the recovery of waste construction and demolition materials throughout the construction process.
- Inefficiencies in the food supply chain from producer to consumer can increase packaging waste as well as food waste. **Improving food supply chain processes** leads to increased resource recovery.
- **Incentives and disincentives** are a tool to increase resource recovery. They should be regularly reviewed to ensure they remain appropriate and effective.
- **Increasing the demand for recycled products** contributes to increased recovery.

QUESTIONS

Do you have any other ideas about how we can increase resource recovery?

► What we are currently doing

In line with the current waste strategy we are:

- Providing funding to local governments to introduce better practice kerbside services to increase resource recovery to meet the waste strategy targets (**Better Bins**). The program encourages a three bin system for greater source separation and higher recovery. The program is being supported by a communications toolkit.
- Providing funding to encourage local governments, state government entities, regional councils and industry to use recycled construction and demolition products in civil projects such as road construction (**Recycled Construction Products Program**).
- Supporting schools to plan and implement recycling, composting and worm farming. **Waste Wise Schools** provides educational strategies for reducing waste to landfill through reducing, reusing and recycling.
- Reducing contamination in waste streams through the **household hazardous waste** program.
- Developing **guidance to improve local government vergeside and drop off services**.
- **Supporting community and industry initiatives** that promote resource recovery through grants programs.
- Introducing a **container deposit scheme** to change community behaviour, increase recycling, reduce littering and support community groups.

► What else can we do?

We believe that we should also:

- **Develop opportunities for state government agencies** to increase their use of recycled products and recover resources.
- **Develop better practice guidance to increase resource recovery** including for the building industry, food supply chain, waste drop-off facilities and landfills.
- **Implement consumer and industry recycling education and engagement programs** to improve attitudes to recycled products, source separation, reducing contamination of recyclable materials and the benefits of recycling.
- Develop a legislative framework to **encourage the use of waste-derived materials**, including **product specifications**, to remove regulatory barriers, build confidence in recycled products and drive increased demand for these products.
- Implement a **state government procurement policy** to support sustainable government procurement principles and practices.
- **Promote food and garden organics kerbside systems** to increase the recovery of food waste.

QUESTIONS

Are there other actions that should be undertaken to increase resource recovery?

What should state and local governments do? Business and industry? Community groups? What will you do?

► Targets

Our proposed targets build on those in the 2012 waste strategy, benchmarked against targets in other jurisdictions.

Resource recovery rate	2020	2025	2030
All sectors – Western Australia		70%	75%
Municipal solid waste –Perth metropolitan region	65%	67%	70%
Municipal solid waste – Major regional centres	50%	55%	60%
Commercial and industrial – Western Australia	70%	75%	80%
Construction and demolition – Western Australia	75%	77%	80%

QUESTIONS

Are these the right targets for Objective 3 of the waste strategy?

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How to make a submission

► Online survey

Access the online survey at www.surveymonkey.com/r/Waste_Strategy_Review

► Written submissions

Submissions can be lodged by email to wastestrategyreview@wasteauthority.wa.gov.au.
or hard copies can be mailed to:
Waste Authority
C/- Department of Water and Environmental Regulation
Locked Bag 33
Cloisters Square, PERTH WA 6850
Closing date: **1 March, 2018**

► For further information

Telephone: (08) 6364 6965 / email: wastestrategyreview@wasteauthority.wa.gov.au