

WASTE AUTHORITY

# Source Separation of Waste

Position Statement



JANUARY  
2014



January 2014

As Western Australia's population continues to grow, one of the significant challenges we face is how to recycle and recover waste and, in doing so, reduce waste to landfill.

This document outlines the Waste Authority's position on source separation as a contributor to achieving the diversion targets from the Western Australian Waste Strategy: *Creating the Right Environment*.

Source separation – or separating waste at home, in the office, on building sites and in public places – has been shown to be effective in increasing recycling. More importantly, good source separation reduces contamination, which in turn improves the quality of the recycled product.

South Australia, New South Wales and Victoria have commonly used a three-bin system for source separation of household waste and kerbside recycling for some time. Their recycling rates are typically between 50 and 60 per cent, which is significantly higher than the kerbside recycling rate being achieved by most Western Australian councils.

The three-bin system includes a bin to collect organics - such as lawn clippings, cuttings and, increasingly, food waste - in addition to the yellow-top recycling bin and the general waste bin. These organics can then be used for high quality mulch and composting. The other benefit is that the residual waste bin (red top bin) will have volatile organics removed, posing less risk for emissions like leachate and methane gas. Also this stream is a readily available feedstock for future waste to energy or refuse derived fuel facilities.

Source separation also works on building sites with some companies sorting products as varied as timber, tiles, cardboard and gyprock on site.

Modelling undertaken for the Authority shows that source separation will be extremely important for meeting the State's future waste management requirements and the Waste Strategy targets.

I look forward to seeing more local governments, industry and community participate in this type of collection system and wide spread use of source separation in other places, including building sites.



Marcus Geisler  
Chairman  
January 2014



This position statement confirms the Waste Authority's support for source separation as an important way of contributing to the objectives and targets established in the Western Australian Waste Strategy: *Creating the Right Environment* (the Waste Strategy).

Source separation involves separating waste into common material streams or categories for separate collection. This may be achieved using separate bin services or vergeside collections, or through direct delivery of specific wastes to drop-off facilities. Source separation may be applied to any waste, including municipal solid waste, commercial and industrial waste, and construction and demolition waste.

Goods and materials commonly targeted for source separation include:

- construction and demolition waste (such as concrete, bricks and timber)
- organic matter (such as food waste and garden waste)
- reusable items (such as clothes and accessories, household items and appliances)
- packaging and paper (such as cardboard, glass, plastics and aluminium cans)
- hazardous wastes (such as paint, batteries, chemicals and biomedical items).

This position statement is consistent with the Waste Authority's *Communication on the Waste Hierarchy* (2013), *Better Bins: Kerbside Collection Guidelines* (2014) and *Position Statement on Recycled Organics* (2009).



### Waste generation in Western Australia

Waste generation in Western Australia is growing, largely as a result of increasing population and economic growth. In 2011/12 it was estimated that total solid waste generation in the Perth and Peel regions was 5.26 million tonnes (2.72 tonnes per capita), and this is expected to increase to 5.5 million tonnes in 2014/15 and 6.0 million tonnes in 2019/20.

### Legislation and policy

The Western Australian Government is committed to reducing waste and increasing resource recovery. The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) and the Waste Strategy are the key legislative and policy documents that support this commitment.

The WARR Act establishes the Waste Authority and its functions, including a requirement for the Waste Authority to prepare a waste strategy for Western Australia.

The Waste Strategy aims to move Western Australia to a low-waste society.

The strategy contains landfill diversion targets for the three main waste streams:

- Municipal solid waste: 65% diversion of metropolitan waste, and 50% diversion of waste from major regional centres, from landfill by 2020
- Commercial and industrial waste: 70% diversion from landfill by 2020
- Construction and demolition waste: 75% diversion from landfill by 2020.



## THE WASTE HIERARCHY

### The waste hierarchy

The waste hierarchy is set out in Section 5 of the WARR Act, and ranks waste management options in order of their general environmental desirability. The Waste Authority has produced a position statement, *Communication on the Waste Hierarchy* (2013), explaining the waste hierarchy and how it will be applied by the Waste Authority in its decision making to support the Waste Strategy.

Separating waste at the source directly supports material recovery by producing a more homogenous and higher value stream which is easier to recover. Conversely, contaminated or mixed waste streams have lower value because they are more difficult, and thus more costly, to separate. These lower quality materials can generally only be used for lower value applications (e.g. crushed glass used as aggregate rather than whole glass containers used for re-melt applications).

Source separation can enable the processing of certain waste streams higher up the waste hierarchy than would otherwise be possible in a mixed waste stream.

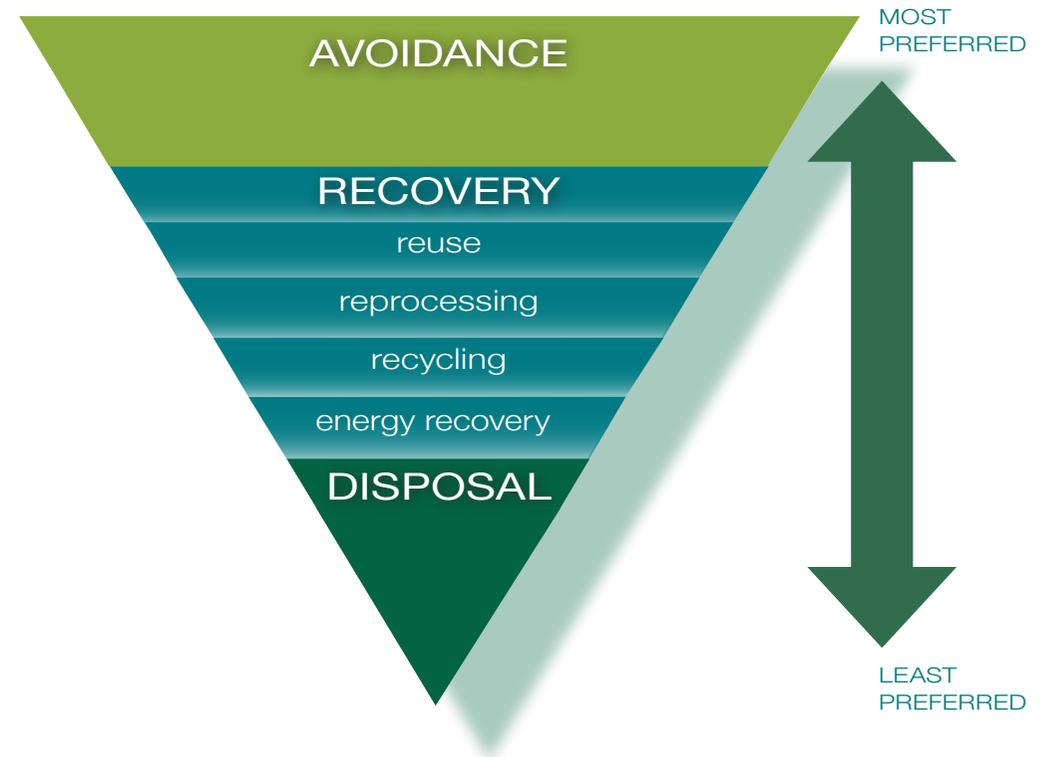


Figure 1 Waste hierarchy based on the WARR Act

The separation of materials at the point of collection results in a more homogenous and higher quality waste stream. Source separated material streams are less contaminated by other materials, and are easier and less costly for recyclers to recover. Therefore, source separated materials represent a higher value to recycling markets. Moreover, source separation may improve the environmental performance and economic efficiencies of waste treatment options.

Source separation is particularly important when high product quality is required, or when mechanical separation is difficult and costly. For example, organic waste (garden and food waste) produces valuable products like compost and mulch. Source separated organic waste results in a high quality and high value product, whereas organic waste contaminated by other waste streams, such as glass or plastic, produces a lower quality product that has more limited applications, or may even be sent to landfill.

Residual waste generally refers to material that is left over after processing (through a processing facility and/or a source separation system), and which would otherwise be sent to landfill. By improving the quality of materials collected for recovery, thereby increasing recovery rates, source separation can reduce the volume of residual waste to landfill.

Source separation can also play an important role in behaviour change. Householders or businesses that separate waste before disposal can increase their awareness of waste materials and recycling processes. This may affect consumer decisions by encouraging waste avoidance and selecting of products that offer better opportunities for recycling.



The Waste Authority strongly supports source separation of waste streams wherever reasonably technically, environmentally and economically practicable.

The Waste Authority:

- recognises that source separation provides more homogenous and higher value waste streams, allowing for better resource recovery
- recognises that source separation reduces contamination of waste streams
- recognises that source separation can support the diversion of waste from landfill
- considers the broader application of source separation of waste to be best practice for improving resource recovery and reducing the volume of residual waste in Western Australia
- believes source separation supports achieving Waste Strategy targets and outcomes
- considers source separation to be consistent with the waste hierarchy
- will consider source separation favourably in its decision making.

## 5. EXAMPLES OF SOURCE SEPARATION PRACTICES

Source separation of waste is encouraged in many jurisdictions, both within Australia and internationally. A number of examples are provided below.

### Australia

The separation of materials for recycling is standard practice throughout Australia with most households having access to a separate kerbside collection service for co-mingled recyclables. Source separation of organic wastes is also widely implemented in the eastern states of Australia, where local governments are increasingly adopting a three-bin kerbside collection system. Local governments that encourage source separation into three or more waste streams are typically achieving resource recovery rates of about 50-60%.

### Europe

The European Waste Framework Directive (Directive 2008/98/EC) provides the general framework for European waste management policy. The Waste Framework Directive aims at preventing waste generation and encouraging the use of waste as a resource, diverting waste from landfill.

## EXAMPLES OF SOURCE SEPARATION PRACTICES cont.

Article 10(2) states "... to facilitate or improve recovery, waste shall be collected separately if technically, environmentally and economically practicable and shall not be mixed with other waste or other material with different properties".

Article 11 states "Member States shall take measures to promote high quality recycling and, to this end, shall set up separate collections of waste where technically, environmentally and economically practicable and appropriate to meet the necessary quality standards for the relevant recycling sectors".

By 2015, member states are to have established separate collection for at least paper, metal, plastic and glass. Most member states have already implemented source separation, with positive outcomes to their waste diversion goals.

### United States

The *Resource Conservation and Recovery Act 1976* (RCRA) provides the general guidelines for waste management in the United States. The Act bans all open dumping of waste, encourages source reduction and recycling, and promotes the safe disposal of municipal waste. Under the RCRA, the US Environmental Protection Agency develops regulations, including the *Source Separation for Materials Recovery Guidelines*.

These guidelines apply to the source separation of residential, commercial and institutional solid wastes. They require or recommend the separate collection of high-grade paper, newspaper, mixed paper, glass, cans and corrugated containers (boxes). The guidelines outline preferred and required procedures for identifying markets for these recyclable materials, levels of separation, methods of separation and collection, storage, transportation, cost analysis, contracts, and public information and education. Source separation of waste has been widely adopted in the United States. The recovery rate for recycling (including composting) has been steadily increasing in the United States, and reached 35% in 2011.

### Japan

Japan introduced the Containers and Packaging Recycling Act in 1995 to reduce the volume of solid waste and to improve recycling through the collection of source separated waste. The Japan Container and Packaging Recycling Association, a government-designated organisation established in 1996, encourages source separation by the consumer, industry and municipalities. Municipalities determine sorting guidelines which businesses and consumers are expected to follow, they are then required to collect the sorted waste separately for recycling.



Source separation of waste streams is widely supported and adopted in Australia and internationally.

The Waste Authority recognises source separation of waste as best practice, and strongly supports source separation wherever reasonably technically, environmentally and economically practicable.

Source separation:

- produces a more homogenous and higher quality waste stream which is less contaminated by other materials, and easier and less costly for recyclers to recover - this in turn represents a higher value to recycling markets
- supports resource recovery and Waste Strategy landfill diversion targets
- supports the efficiency and environmental performance of waste treatment options
- supports the processing of waste streams higher up the waste hierarchy than would otherwise be possible in a mixed waste stream
- engages communities and raises awareness of waste generation and recycling which in turn supports behaviour change.

The Waste Authority promotes source separation of waste to improve resource recovery and help achieve Waste Strategy targets.

## REFERENCES

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