

# Waste Management, Cost Savings and Environmental Kudos

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**Dr Anne-Marie Bremner, Encycle Consulting**

[anne-marie@encycle.com.au](mailto:anne-marie@encycle.com.au)

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## **Abstract**

There are a range of reasons why your building could look at improving the waste and recycling systems and gain both cost savings and environmental benefits. Waste costs are on the rise as landfill space close to our cities begins to run out. Your building occupants are becoming increasingly aware that waste is not just about putting things in a rubbish bin but is also about:

-  Landfill avoidance
-  Climate change emissions from landfill
-  Climate change benefits from the more energy efficient process of recycling
-  More efficient use of the finite resources we have available to us

There are many recycling options available, it is important to identify the simplest ones to implement in your building. There are many simple rules that need to be followed to ensure that recycling is easy and obvious for your building occupants. There are great opportunities for your building to 'look' more environmentally responsible by having recycling bins in place that are a very visible demonstration of awareness and commitment to environmental considerations.

Tackle the issue by using the standard processes of continual improvement: Know, Plan, Engage, Monitor and Review.

## **Introduction**

Waste is often not thought about as a key environmental issue in buildings; the focus is generally on energy and maybe water. Commercial and municipal buildings are responsible for a significant proportion of the waste stream. Problems relating to waste can be interlinked with other factors such as building systems, company policies, company culture and staff perception; there is often no single bullet solution to sorting out problems.

To tackle your waste streams you'll need to understand a little bit of: science, local infrastructure, economics, behavioural psychology, coordination and project management. This can make it a challenge but it is an achievable goal with very positive outcomes.

Often, people don't want to talk about waste until it's a problem. Facilities managers are particularly used to dealing with the aspects of running a building that no-one else is interested in until they go wrong.

This paper discusses:

- 🌱 the environmental impacts of waste
- 🌱 the opportunities for improving the profile of your building by proactively tackling waste
- 🌱 some of the quick wins and some of the areas where introducing changes to your waste systems might cause a bit of a problem
- 🌱 the ways to tackle waste and implement positive change in your building

### **Why recycle? What is the big fuss about?**

The old fashioned view is waste goes in the bin and then 'away'; we didn't really think about where it went (so long as it was taken away). Now there is a greater awareness among your building occupants that waste often goes to a landfill and that this is probably not a desirable outcome. Ask yourself if you would like to live next door to a landfill.

Landfills are basically big holes in the ground that get filled with rubbish. Landfills smell terrible, cause dust and litter, attract birds and vermin, can leak leachate which can end up in groundwater and have noisy, dusty trucks running into them all day

Even in WA where big holes in the ground are a local speciality, we're running out of space near to our major conurbations that is suitable for landfill. As the sites move further away from the city the costs are going to increase dramatically.

The problem with landfill isn't just restricted to the fact that they are smelly, dirty and unsightly. Organic material (anything once living, e.g. paper, food, timber) breaks down very slowly in the absence of air to produce methane. Methane is "natural gas", just the same as we use to cook with at home. At landfills, the gas given off smells much worse than the gas in our cookers because of the sulphurous compounds and other breakdown by-products. The main properties of methane are that:

- 1) It is potentially explosive - landfills are well managed now but this is still something to think about
- 2) Can be captured for electricity generation which is a good thing. However, landfills cover large areas and managing to capture the gas from right across the whole site is almost impossible and often very inefficient (the average collection rate in Australia is around 50%). Only large landfills can capture methane for energy production, it's too hard and not viable to do at smaller, regional sites
- 3) Methane is a powerful greenhouse gas – over 20 times the global warming impact of carbon dioxide and landfills are responsible for 3% of Australia's greenhouse gas emissions

So some of your building occupants are aware that they don't like landfill, landfill costs are going up and waste has a climate change impact. Your occupants are also possibly starting to

realise that waste isn't just "stuff that goes in the bin", it's literally a waste of resources. Before an item became a waste, where did it come from? When materials are dug out of the ground and processed, this can use a large amount of energy to transform raw ore or oil into our packaging, i-Pods, cars, clothes etc. The energy taken to transform an aluminium soft drink can back into a new soft drink can is one-twentieth of the energy needed to dig up more bauxite (aluminium ore) and process it into a new can. So recycling translates into a significant environmental benefit both in terms of climate change impacts and saving valuable resources for the future.

## **Opportunities from implementing recycling in your building**

The environmental impacts of recycling can be translated into a good news story, namely the opportunity to "look good" as a responsible corporate citizen. Many staff, tenants and customers recycle at home and would like to do so at work too. When your staff feel that they are given these opportunities, they feel that your company cares about the future and isn't solely focussed upon the economic bottom line. People who work for companies with a strong environmental management portfolio are proud to do so and are more loyal.

Recycling is a very visible demonstration of environmental commitment. You know that people will judge your building on appearance. How the bins look is an important part of that. You can show that your organisation is clean, efficient and organised. People entering the building can't see the fantastic chilled beam system or the green tariff energy that you purchase but they will definitely see, and probably use your bins.

## **Waste costs**

Waste costs are not just about bins and collection companies. Cleaners and staff moving rubbish around the building are all things you are paying for and more importantly, can lead to costly health and safety issues.

If you are not managing your waste well, you're paying for it many times over. For example, if you have no policy around printing, filing or the recycling of paper, you're paying for:

- 🌱 Large amounts of additional paper to replace the 'wasted' materials
- 🌱 Staff time and resources to deliver that additional paper within the building
- 🌱 Staff time to collect additional bins needlessly full of paper
- 🌱 Waste collection and disposal of that paper
- 🌱 Very likely for documents incorrectly disposed in the confidential documents bins by well-meaning staff who wish to recycle
- 🌱 Inefficiencies and poor image relating to over-burdened waste storage areas
- 🌱 Missed opportunities to engage with your staff and clients to inspire loyalty and demonstrate a positive corporate culture

## **Key material streams**

The table below shows some of the common office types and some of the major materials that are easily recyclable that may well be in your general waste stream. The products listed here

are the easy wins that are relatively straightforward to implement and likely to be cheaper per bin lift.

Material stream	Disposal considerations	Quantity in your building
Paper/cardboard (inc. confidential)	<ul style="list-style-type: none"> <li>Easy to collect separately</li> </ul>	In offices: 55% - 75%
Glass and containers	<ul style="list-style-type: none"> <li>Relatively easy to collect separately</li> <li>OSH issue in general waste (heavy and sharp)</li> </ul>	Licensed premises: 25% - 50%
Food waste	<ul style="list-style-type: none"> <li>Requires staff education to collect separately for composting</li> <li>OSH issue in general waste (heavy, attracts vermin, smells bad)</li> <li>Source of tenant/customer complaints about odour</li> </ul>	Food service: 50% - 60%

The material streams described in the table above show the 'quick win' opportunities for different activities within your building.

### Relative costs

While costs differ across different states/cities, regional or metro areas and material types, generally speaking for the 'standard' recyclable materials it is cheaper to recycle and you may even receive rebates. The table below outlines some of the costing scenarios. Note that depending upon the cleanliness of your collection, you may even receive rebates for cardboard and paper.

Material stream	Costs
Paper/ cardboard (inc. confidential)	<ul style="list-style-type: none"> <li>City of Perth paper/cardboard recycling = 50% of waste charge</li> <li>Opportunities for rebates: high</li> <li>Likelihood of other paper in confidential docs bin: high</li> </ul>
Glass and containers	<ul style="list-style-type: none"> <li>Cheaper than general waste (variable)</li> </ul>
Food waste	<ul style="list-style-type: none"> <li>Cheaper than general waste, (can possibly compost on site)</li> <li>Can be removed and stored automatically to avoid handling</li> </ul>

	costs
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### The downside

If it was easy to implement recycling systems, then buildings would already be doing it. There will need to be a greater range of different bins for each material stream. The real key is to be coordinated between building management, system users and the cleaners. Human beings will be operating the systems and communication is critical.

Material stream	Barriers
Paper/cardboard (inc. confidential)	<ul style="list-style-type: none"> <li>🌱 Provide some additional bins</li> <li>🌱 Provide small desk bins</li> <li>🌱 Tenant/staff engagement</li> </ul>
Glass and containers	<ul style="list-style-type: none"> <li>🌱 Provide some additional bins</li> <li>🌱 Separate collection service needed</li> <li>🌱 Tenant/staff engagement</li> </ul>
Food waste	<ul style="list-style-type: none"> <li>🌱 Provide some additional bins</li> <li>🌱 Separate collection service needed</li> <li>🌱 Staff engagement</li> </ul>

### How to Tackle It

As with implementing any new system, there is a basic model that will work, based on the ISO (International Standards Organisation) standard for implementing a quality management or environmental management system and putting yourself on the 'continual improvement' track.

- 🌱 **Know your waste** streams and identify the easy wins
- 🌱 Make a **Plan** – don't try to do everything at once, break off bite sized pieces
- 🌱 Talk to the **waste service providers and the cleaners**
- 🌱 **Engage** tenants and staff **early and often**
- 🌱 **Monitor** what's happening and gather evidence for the management (waste service provider should give you data)
- 🌱 Keep system users **informed** and provide records of achievement for marketing
- 🌱 **Review** regularly and continually improve

## Common mistakes

The “Rule of **least resistance**” tells us that people will only walk as far as the nearest bin. The people using the bin will have many things on their mind that are more important to them than using the correct bin. If you have placed a recycling bin on its own, with no general waste bin next to it, the bin will definitely be full of contamination since most people will just see a bin and not register or not care that it isn't the right bin for the item in their hand.

There is often a perception that everyone else in the organisation doesn't care and you are the only one that does. This generally isn't true, but the poor design of systems or inadequate communication can sometimes mean that systems fail. Engaging tenants, staff and cleaners *early and often* will help to ensure that people who do care are on board with what you are trying to do and help to make the systems succeed.

Don't keep your achievements a secret! Feedback regularly to the system users so that they know that their efforts are actually making a difference. Capitalise on the opportunity to use your success as a marketing tool and place information on your website.

## Future improvements

Once you have established the basic recycling systems, momentum will start to build and it will become possible to recycle more materials, more often. Some of the 'trickier' products generated in your building can be recycled but may have a cost associated with recycling. However, these products tend to have a 'perceived' value and it is generally easier to ask people to separate them out for recycling. The environmental wins for recycling products with potentially toxic trace elements in them are huge though. Some of the other product opportunities to recycle include:

### **e-waste, fluorescent tubes, plastics, mobile phones, batteries**

The holy grail of waste management is 'waste avoidance', i.e. not producing the waste in the first place. This requires internal systems improvements. The most progressive companies are starting to implement 'green' procurement policies and are switching to electronic invoicing, HR forms, etc. and removing the need for at least some of the paper 'mountains' that are produced in the organisation.

The benefits of waste avoidance for the environment are obvious; that you are producing less material, transporting less and disposing of less. Waste avoidance may require some processes to be established, a communication plan to be put in place and possibly a new electronic system to be put in place. However, the avoided staff time, moving new 'disposable' products around the building or removing waste from the building can represent a big win. You will also avoid buying more product than you need; the cost savings can stack up quickly.

Your competitors and customers will judge your building on appearance and will judge your organisation on that building. If your building is a sleek, clean, place with no unnecessary rubbish sitting around and elegant recycling systems in place, this will communicate your organisations commitment, efficiency and responsible approach very effectively.