



Recycling Myths: Sorting the Facts from the Fiction

“The great enemy of the truth is very often not the lie - deliberate, contrived and dishonest, but the myth, persistent, persuasive, and unrealistic. Belief in myths allows the comfort of opinion without the discomfort of thought.”

- John F. Kennedy (1917 - 1963)

A Report by



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Executive Summary

The last 20 years has seen the development of council recycling collections in Australia, giving householders a convenient way to return materials for use in new products.

Initially, the recycling industry had teething problems, as can be expected with emerging industries. The industry of today is relatively mature and more consolidated, with far greater experience. The trial and error of early years however, coupled with the lack of education and degrees of reluctance from households, government, and corporate Australia has seen the misconceptions of recycling grow to mythic proportions.

This report has been prepared to dispel the key myths about waste and recycling. These misunderstandings undermine the public's confidence in Australia's recycling systems, confuse those trying to do the right thing and slow our progress on the path towards sustainable resource use.

The scope of this report is limited to myths that circulate amongst the general public, and does not include the often more complex myths that circulate at industry and academic levels.

We chose to address 20 myths, with their selection based on:

- Misconceptions from members of the public who have contacted Planet Ark for waste and recycling advice and information,
- Issues raised with Planet Ark spokespeople in media interviews,
- Difficulties encountered by council waste education and recycling officers, either based on their contact with householders or on the evidence of the contamination or misuse of local recycling services, and
- Common misunderstandings suggested by people within the recycling industry as issues of particular concern.

Planet Ark prepared and researched this report in consultation with councils and the recycling industry, as they are the people who have to deal with the negative consequences of recycling myths. Additionally, the report draws on Planet Ark's extensive experience with recycling initiatives and waste education. This includes a series of Roy Morgan Research investigations into public attitudes and awareness with regard to recycling as well as previous waste and recycling reports prepared by Planet Ark.

Finally, the report draws particularly on leading thinkers in the waste and recycling arena as well as broader Australian and international environmental circles.

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The report discusses each myth, investigating the elements that are fact and separating them from those that are fiction. In many cases there is an element of truth, from which the myth has been incorrectly deduced. Where possible, we've also discussed the possible origins of each myth.

The report unearthed three common themes:

- Myths stemming from ignorance, confusion or a lack of information about local recycling services.
- Excuses for not recycling.
- A failure to understand the complexity and diversity of waste and recycling programs and the lack of 'big picture' understanding of recycling within a broader environmental context.

In conclusion, the report suggests various reasons why these misconceptions exist and continue to be perpetuated, including:

- The desire of the media and householders to have recycling and other environmental themes explained in simple terms when in reality, the information can be very complex. This over-simplification often leads to confusion and inaccuracy.
- Confusion caused by the many varied and changing recycling collection services, which can differ from one council area to another.
- Social and psychological influences, such as the resistance to change or the tension between altruistic recycling and resentment borne of a sense of obligation to recycle.
- The global spread of information, resulting in overseas environmental models being incorrectly applied to Australia's situation.
- The perpetuation in the media of the opinion of individuals who do not have expertise in the field of recycling.

Finally, we recommend ways in which various groups in society can contribute to a better understanding of these issues. It is Planet Ark's hope that busting recycling myths will improve community participation, thus reducing environmental impacts and restoring Australia's confidence in our recycling industries.

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Introduction

“It ain’t what you don’t know that gets you into trouble. It’s what you know for sure that just ain’t so.”

- Mark Twain (1835 - 1910) American writer & lecturer

Myriad myths exist concerning recycling, partly because there is an element of mystery in the act of recycling itself. Your recycling goes into a special bin and a truck comes and takes it away, meaning you don’t actually see what happens to the recyclables with your own eyes.

The issue surrounding recycling myths is that they undermine Australia’s best efforts at making better use of our material resources. This commonly results in services being used incorrectly, resulting in the wrong things ending up in the wrong bins.

All too often, recyclable material that could be made into new products is buried in landfill. In other cases, recyclable material put in the recycling bin may be contaminated, thus increasing processing costs and limiting manufacturing use.

Many people incorrectly state ‘environmental’ reasons for not recycling. Are these genuine concerns, naivety or perhaps even a mask for apathy?

This report provides more information about how and why recycling works. In order to make an informed decision on whether or not to make an effort to improve your waste habits, it is important that the issues be addressed objectively.

People who may be perpetuating recycling myths or choosing not to recycle are challenged to take a closer look and ask themselves if they’re satisfied with a little bit of knowledge and a whole lot of ignorance. It asks them to stop and think before passing this ignorance on to other people.

Ultimately, the aim of this report is for Australians to get informed and active in recycling and the sustainable use of our resources.

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Recycling Myths – Busted!

Myth 1: “Australia has ample space to bury our waste, so I don’t need to recycle.”

The global spread of information is partly to blame for this myth, with many reports of landfill shortages in places like Japan, Europe and the UK. Space is at a premium in these densely populated areas and landfill shortage is a significant driver for their recycling programsⁱ. Whilst not the sole driver for recycling, landfill shortages generate news headlines, giving the impression that space for landfill is the primary consideration for waste disposal.

This myth implies that the only issue with landfill is the availability of real estate. Australia’s population density is 2.5 persons/km² (compared with 233.2/km² in Germany, 336.1/km² in Japan, 244.2/km² in UK and 29.1/km² in USAⁱⁱ), which gives the impression that we have ample space for landfill disposal. As it is, other countries eye off our ‘dead centre’ as potential landfill space for unwanted and hazardous wasteⁱⁱⁱ.

This however, ignores the fact that burying household waste in landfill has many other environmental impacts and that landfill sites need to be in relatively close proximity to population centres.

Environmental costs of landfill

The breakdown of organic matter in the anaerobic (without air) conditions of landfill produces greenhouse gases carbon dioxide and methane, with the latter having a global warming potential 20 times that of carbon dioxide^{iv}. Whilst some sites capture some of the methane for power generation, a significant amount^v escapes to the atmosphere. Landfill gas is an expensive way to produce ‘renewable’ energy and there are better, greener ways to produce this energy. There is a danger that producing energy from waste (that could have been avoided or minimised) will give people an excuse to continue their wasteful behaviours with continuing harm to the environment. Putting organic matter in a well-aerated backyard compost bin allows this waste to breakdown in a way that produces a lower proportion of methane.

Landfills also produce liquid wastes, called leachate. Leachate has been termed a ‘noxious soup’^{vi}, containing a mixture of liquid produced from the breakdown of organic matter, other liquid wastes such as leaked coolant or battery acid, rainwater and other dissolved chemicals and fine particles in suspension. Leachate from landfills is tightly regulated in Australia, with requirements for them to be lined or for leachate to be piped away through a leachate control system.

Despite this, there remains the potential for leachate to contaminate surrounding land, waterways and aquifers through accident or poor management. Such contamination is a growing problem in many less regulated developing countries. Once closed, landfills require post-closure monitoring, care and remediation. This is an economic cost exacerbated by the amount of waste our society sends to landfill.

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Proximity to urban centres

We've mentioned that landfill takes up real estate. The mantra of real estate agents is 'location, location, location!' and this is as crucial an issue for landfill as it is for the property market.

There are economic and environmental trade-offs in choosing landfill sites. No one wants a landfill in their neighbourhood, however, siting a landfill close to urban areas reduces transportation costs and environmental impact. This was highlighted in the United Nations report *Sustainable human settlements development and environmentally sound management of solid wastes*, 2001^{vii}:

"Increasing landfill prices and availability in or around the urban centres make waste disposal increasingly difficult and costly. Finding a suitable site that offers an economically sound disposal option is becoming increasingly difficult."

Increasing the costs of sending material to landfill however can have its upside as increased landfill costs can make recycling the more cost effective way of dealing with waste.

Landfill buries the resource

This myth also ignores the fact that recycling and waste avoidance are ways to make better use of resources. The metals and minerals mined from the earth and the petroleum used to make plastics are finite resources, which become increasingly difficult to extract as they become scarcer.

One WWF International report stated that humanity could face a sharp drop in living standards by the middle of the century unless it stopped its current rate of consumption of the earth's natural resources^{viii}.

Every product is an investment of material resources. Refining and processing them also represents an energy investment. Aluminium, for example, is smelted at very high temperatures, giving it a very high 'embodied energy'. Making aluminium from recovered scrap takes 95% less energy than using raw materials. Recycling makes these materials available again for manufacturing new products, which is a better use of both materials and energy.

Life cycle analysis studies have been used to compare landfill with recycling to determine the environmentally preferable way to dispose of waste. These studies repeatedly designate waste disposal in landfill as the least desirable option. For example, one assessment of paper and packaging waste management concluded "...on a system wide level, recycling provides substantial environmental savings originating from both avoided virgin material production and avoided landfill impacts."^{ix}

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Myth 2: “Reuse is always better than recycling.”

The waste hierarchy model places differing approaches to managing waste in order of priority, reflecting their assorted environmental consequences. The order is; avoid, reduce, reuse, recycle, energy recover, and landfill, with the latter being the least desirable outcome model.

On the whole, the waste hierarchy holds true as a model for waste management. In particular, it applies well to the paper and packaging materials commonly collected through council recycling services.

Broader environmental management models and life cycle assessments however, take a more holistic approach, potentially rendering the waste hierarchy invalid. In the case of complicated products and wastes such as electronic waste, if an item is reused (thanks to remanufacturing with new parts or ingredients) and this results in hazardous materials ending up in the environment, then reuse is not necessarily better than recycling.

Print consumables are an excellent example of this, as they are a complicated assembly of mixed plastics, metal, toner powder, ink, foam, rubber and precious metals. This makes the print consumable waste stream very complex and potentially hazardous to human health and the environment when disposed of in landfill.

In 2002, it was reported that Australians consumed over 18 million print consumables, resulting in around 5,500 tonnes of waste. Once empty, worn out or out of date, the majority were sent to landfill, resulting in a highly inefficient use of materials. These 18 million printer cartridges equate to approximately 3,000 tonnes of plastic, 1,500 tonnes of ferrous metals, 400 tonnes of aluminium, 26 kilograms of precious metals as well as a significant amount of residual toner powder, ink, packaging and other materials entering the waste stream.

Historically, the solution for addressing the print consumable waste stream was dominated by independent companies. These companies specialised in remanufacturing and refilling certain types of toner cartridges and inkjet cartridges. Unfortunately this only recovered around 12% of the total waste stream, with the rest going to landfill.

As part of their process, refillers and remanufacturers collect cartridges waste, only using suitable types for refilling or remanufacturing with the remainder going to landfill. The remanufacturing process requires replacement parts such as toner and ink to be imported, whilst unwanted parts and residual toner and ink are sent to landfill.

Whilst some companies remanufactured to a high standard, historically poor or inconsistent quality control across many local refillers led to consumers having refilled cartridges falling apart or leaking, leading to printer damage wasted paper and unproductive downtime. This series of issues had environmental impacts that offset the potential environmental advantage of reusing the cartridges.

In 2003, Planet Ark joined forces with Close the Loop[®] (CtL) an Australian hi-tech resource recovery company who developed the technology to recycle all print consumable waste with zero waste to landfill. Unlike the refilling industry programs, this program recycles all brands and types of print consumables, preventing this potentially hazardous waste from ending up in landfill.

Backed by major players in the printer cartridge industry, this successful Planet Ark initiative has now recycled over three million printer cartridges.

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Myth 3: “Most of our recyclables are exported.”

This statement is sometimes given as a reason to not recycle, reasoning that exporting waste increases the transportation greenhouse impact while contributing to pollution in poorly managed waste and recycling operations in the non-western destination countries. The key issues to address are:

1. Is this actually the case?
2. Is the export of recyclables bad for the environment?

Are most recyclables exported overseas?

Australia has always struggled with producing national waste and recycling figures, partly due to differing ways in which wastes are defined and measured^x. Even considering this, figures from specific industry sectors or jurisdictions contradict this myth. For example:

- The Publishers National Environment Bureau’s *Old Newspapers Market Report 2005* reported that around 35%^{xi} of the 592,485 tonnes of newspapers collected were exported, with the remaining 65% recycled in Australia into new newsprint, paperboard, packaging and other products. As a result, Australian newsprint has a recycled content of approximately 20-40%.
- Of the 190,979 tonnes of scrap/waste plastic recovered in Australia in 2004, 61,908 tonnes (32%) was exported, whilst the remaining 68% was reprocessed locally. Of the portion reprocessed (sorted, cleaned and pelletised or flaked into a usable ‘secondary’ raw material), 93% was used in Australia with the remaining 7% sold to overseas buyers.^{xii}
- Sustainability Victoria’s *Annual Survey of Recycling Industries 2003-04* reported that 91% of material recovered in 2003-04 was reprocessed within the state. In addition to creating recycling jobs within Victoria, this equates to 4,601,938 tonnes of material recycled locally and not exported or sent to landfill.

While it appears that much of our recycled material is used locally, this won’t necessarily continue. Given Australia’s relatively mature recycling industry, the exporting of recycled raw materials that are reprocessed in Australia is increasing. This is because scrap recovered materials and those that have had ‘value added’ through reprocessing are valuable commodities in the global commodity market. Consequently, recyclers seek the highest price possible for their recovered raw materials to maximise profit. Equally, Australia imports virgin materials based on where we can get the cheapest price. In this regard, the end markets for recycled and virgin raw materials are both dictated by the need to maximise profit.

Innovative examples exist of recycling and manufacturing happening side by side. A motto of Visy Industries is “At Visy, we make it, we take and we recycle it.” One division of the company, Visy Recycling, collects and sorts recyclable materials from businesses and households with other parts of the company, such as Visy Board and Visy Pulp & Paper, using these collected materials to make new products.

CSR Bradford Insulation make their Glasswool insulation bats^{xiii} with around 70% recycled content. They get their glass cullet manufacturing feedstock from a glass recycler 3km down the road from their Inglewood manufacturing facility.

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Is the export of recyclables bad for the environment, here or overseas?

Ideally, the best environmental option is for recovered materials to be recycled and made into new products locally. The greenhouse impact of the transportation can be significant enough to be a consideration, although transportation to China and India has a typically low greenhouse impact as for the majority of the distance, the materials travel by sea.

Environmentalists worldwide are more concerned with the export of potentially hazardous or polluting wastes to developing nations where they may be processed in unsafe and largely unregulated conditions. In 2002, the Basel Action Network and the Silicon Valley Toxics Coalition released the alarming report *Exporting Harm: The Techno-Trashing of Asia*, claiming that 50 to 80% of e-waste collected for recycling in the United States was exported to developing nations.

Fortunately, Australia has ratified the Basel Convention, a UNEP framework for controlling the movement of hazardous wastes across international frontiers. Hazardous wastes can only be exported from Australia with a permit. This is granted only where it can be shown that the wastes will be managed in an environmentally sound manner in the country of import. Under the Hazardous Waste Act, exporting hazardous waste without a permit is an offence, punishable with a fine of up to \$1 million or imprisonment for up to five years.

In the context of household recycling, the materials covered by the Convention are not those recycled through council collections.

Myth 4: “All recycling goes into one truck and is sent to landfill.”

This myth is more commonly believed by people who live (or have lived) in areas that use a different recycling collection and bin system. Recent years have seen many councils move away from collecting household recyclables in bags and crates. This usually involved a truck with a three-person team (one driver, two runners) to sort the recyclables at the kerb. While this method minimised contamination, it was a labour intensive process.

With more stringent occupational health and safety requirements, an increasing number of councils have introduced automated recycling trucks, removing the need to physically lift heavy bins or separate the recycling at the kerb. This has led to the widespread use of mobile garbage bins, better known as wheelie bins. This moves the source separation of products away from the kerb and across to the material recovery facilities.

The two main types of recycling wheelie bins are ‘split recycling’ and ‘fully co-mingled’. The former usually has a divider in the bin, with one side for containers and the other for paper and cardboard or one side for recyclables and the other for household waste.

The split bins are emptied into specially designed trucks that have separate sections.

“Appearances often are deceiving.”

- Aesop (620 BC - 560 BC)



The benefit to councils is that the split garbage/recycling bin systems don't require a second truck to undertake a second collection. The collected waste in these split systems ultimately go their separate way at a transfer station; the waste element to the waste depot and recyclables to the materials recovery facility (MRF).

Split bin system trucks look a lot like garbage trucks, so it may appear to the uninitiated that both waste and recycling are ending up as garbage. This is simply not the case.

The fully commingled recycling bin is for residents to place all their recyclables in the one container together. The mixed recyclable material is then sorted at the material recovery facility.

So while in many councils it is true that recyclables are all placed in the one truck, those that pick up the split recycling bins have separate sections allowing the recyclable material to be separated at a MRF for recycling into new products.

Myth 5: “I don't recycle – if all biodegrades in landfill.”

It's a commonly held view that everything, *given enough time*, will eventually decompose. In this myth, rubbish is viewed as a problem only as long as it persists and takes up space. The problems with landfill however are much more complex, with the time taken for materials to break down being a lot longer than is commonly believed. Plastics for example, are basically inert in landfill and do not break down.

Organic materials biodegrade naturally through the action of micro-organisms that digest the materials. This happens more quickly in air and sunlight, whereas landfill conditions bury layer upon layer of waste with more waste. These anaerobic conditions slow down the natural decomposition process and increase the proportion of methane produced.

Aside from organic matter, there is a plethora of complex products, plastics, alloys and other materials that end up in landfill. Many of these are new to nature and indigestible to enzymes and microbes. Microbes may be able to break down crude oil, for example, but once it is turned into plastic it becomes unrecognisable.

In studying past civilisations, archaeologists and anthropologists rely on the fact that rubbish heaps can last for centuries without completely breaking down. Professor William Rathje's study of modern garbage from an archaeological perspective gave rise to the term 'garbology'. This study found examples of 50 year old newspapers in landfill that were still legible, despite newspaper being 'biodegradable'^{xiv}.

“In 1567 when James VI (later James I of England) was crowned King of Scotland, he was just 13 months old. If he had been wearing modern disposable nappies, disposed of in landfills as they are nowadays, some still would not have completely biodegraded.”

- Tanya Ha, environmental author, quote from *Greeniology* (2nd edition, Melbourne University Publishing, 2006)



In short, landfill is not a solution. Biodegradation is not some sort of magic whereby rubbish disappears. Even after closing, landfills can continue producing polluting gases and leachate for up to 30 years or more.

Myth 6: “Recycling is not worth the effort, because it’s not economically viable.”

There has been much debate over the costs and benefits of recycling. To the uninitiated recycling seems to be an extra service, the logical extension being that this equates to an extra cost. As a result, the financial costs of recycling often gain media coverage, fuelled by opinions and studies that take far too narrow a focus. The real questions are:

1. Is there an additional cost involved in recycling, compared with all waste going to landfill?
2. Exactly how much is this cost?
3. Is this ‘too expensive’?
4. Is this a cost or an investment? What does this investment return?

If you limit a study of the costs of recycling to just the financial costs incurred by councils to deliver recycling services to households, offset by the sale of collected materials, then currently there is a net cost. A 2001 study conducted by Nolan-ITU and Sinclair Knight Merz (SKM Economics) for the Department of the Environment and Heritage found that the average net financial cost of kerbside recycling collections is \$26 per household per year^{xv}.

Critics of recycling like to quote figures like these. However, number tells only part of the financial story. Presented without the full picture, this cost information is misleading.

“A little learning is a dangerous thing.”

- Alexander Pope (1688-1744)^{xvi}

“A little learning is a dangerous thing but a lot of ignorance is just as bad.”

- Bob Edwards, American broadcaster

The purpose of the 2001 Nolan-ITU/SKM Economics study was to assess the benefits of kerbside collection and recycling systems and their viability, examining financial, environmental and social costs and benefits.

The study found that kerbside recycling delivers an average environmental benefit of \$68 per household per year, or a total national environmental benefit in the order of \$424 million per year^{xvii}. These benefits include avoided costs from air and water pollution associated with landfill, avoided manufacture from virgin materials, a reduced global warming impact and the avoided direct costs of landfill itself.

Clearly, kerbside recycling delivers a net financial and environmental benefit to society when viewed at a society-wide level.



It must be said that councils and their ratepayers bear the costs of recycling with councils not directly receiving all of the financial benefits. As members of our society however, ratepayers certainly do. Many councils began recycling reluctantly at the insistence of their householders, because many ordinary people wanted to contribute to environmental sustainability. In general, the public are happy to pay the average 50 cents per week required for recycling. Roy Morgan research commissioned by Planet Ark in 2005 found that 95% of Australians believed their local recycling services were very important to them.

Much of the debate over the costs of recycling occurred while Australia's recycling industries were in their infancy. It is widely accepted that all new businesses and emerging industries having high set up costs and that operating costs reduce in the long term, usually after an early teething period. Australia's recycling collection systems are now relatively mature and further work is being done on developing markets for collected materials.

Better education will lead to less contamination. Too often, people are not fully aware of what is and isn't recyclable in their local area, which leads to costly contamination and recyclable materials ending up in landfill, where the value of that material is then lost.

One good example of this is aluminium cans. At the moment 900 million aluminium cans a year are thrown away as litter or as waste into landfill. The value of these to a scrap metal merchant would likely exceed \$15 million. Aluminium cans collected at kerbside are currently worth around \$1,400 per tonne, meaning a significant amount of money is lost from them not being recycled.

In 2002, the CSIRO released the *Future Dilemmas* report on options for Australia's population, technology, resources and environment to 2050. It noted our steadily growing population and that as virgin raw materials become scarcer and the demand for these materials increase from growing economies such as India and China, the price of collected recyclables will rise. Recycling will swiftly become a financial and material necessity, particularly if we are to continue our current standard of living.

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Myth 7: “Recycling doesn’t really help the environment.”

There is a common misconception that something environmentally preferable is completely without environmental impact. This simply isn’t the case. The term ‘environmental impact’ covers a huge spectrum, including resource efficiency, pollution, energy use, greenhouse contribution, effects on ecosystems, loss of biodiversity and environmental health implications. When assessing different options, we need to look at the **net environmental benefits** across this broad range of impacts.

Life cycle assessment (LCA) has become an important tool. It studies and measures a broad range of environmental impacts through the entire life cycle of a product or service, including impacts during product use and ultimate disposal. This approach allows us to quantify environmental impact so that different scenarios can be objectively compared.

With regard to recycling, recycling trucks do use fuel and produce transport emissions, however landfill also contributes to the greenhouse effect. Making new products out of recovered materials often saves huge amounts of energy.

All waste materials represent an investment of the materials, water and energy (called embodied energy) that were originally needed to make them. To some degree, recycling recovers a portion of these resources. The Australian Council of Recyclers estimates that recycling in Australia annually contributes in excess of \$3.5 billion of eco-services to Australian society and recovers \$912 million of commodity value and 68,400 giga-Watt hours (GWh) of embodied energy^{xviii}. A 2001 life cycle assessment^{xix} that studied the environmental savings of recycling also considered the negative effect of transporting recyclables and found these to be insignificant.

In simpler terms, choosing not to recycle in order to avoid the environmental impact of recycling is akin to having a diet high in junk food while avoiding avocados because they have a higher fat content than other vegetables.

The NSW Department of Environment and Conservation recently commissioned a study into the benefits of recycling^{xx}. According to the study summary “Every 10 tonnes of extra recycling we can recover is equivalent to taking an extra four cars off the road permanently, the annual electricity requirements for 14.5 households and saves enough water to fill 3.5 average backyard swimming pools.”

The Department also produced an Excel Calculator to accompany the report in order to help councils estimate the environmental benefits of their recycling programs. The report and calculator are available online via the following link:

http://www.environment.nsw.gov.au/education/spd_igov_benefitrecycling.htm

In short, recycling provides a net environmental benefit in Australia’s population centres. It should be noted that there are some regional and remote areas where waste is produced in such small quantities and so far from processing centres that recycling isn’t the best option for waste management, but these are a small minority.

BUSTED

Myth 8: “I can put anything into my council recycling collection bin – someone else will sort it for me at the recycling plant.”

What you put in your recycling bin makes a huge difference. When the right things go into recycling bins, the collected recyclables have less contamination and therefore can be made more cheaply into a broader range of products. When rubbish is put into recycling bins, recycling becomes more expensive. In this instance, some otherwise recyclable materials may have to be dumped in landfill, the output of recycled raw materials is less pure, workers at recycling facilities can be put at risk and in some cases machinery can be damaged.

Recycling centres use some degree of hand sorting by workers and some automation. For example, industrial magnets are used to pull off magnetic steel and blowers literally blow off scrap paper. Putting recyclables into plastic shopping bags and tying the handles together, for example, interferes with this automation and potential results in these materials going to landfill.

These recycling centres are designed to deal with paper and common packaging materials, although some materials can effectively slip through the cracks.

For example, glass recycling programs are designed to process glass bottles and jars only. Drinking glasses, ceramics, plate glass (window panes) and oven-proof glass are toughened, melting at higher temperatures than normal glass bottles and jars. These shouldn't be put into recycling bins. Glass and ceramics are broken in recycling collection vehicles and the crushed toughened glass becomes mixed with crushed bottle glass. Contamination from as little as 15 grams per tonne can result in one tonne of valuable glass going to landfill. This is because contaminants mixed with the desired glass results in a poorer quality, impure product. In addition to solid bits of toughened glass in molten container glass can contaminate glass and damage recycling equipment. For example, workers that make glasswool insulation using glass 'spinners' fed with molten recycled glass find that toughen glass bits can block the spinners, putting them temporarily out of action, reducing productivity.

Also remember that some recycling facilities have workers that hand sort recyclables, with one facility reporting a live hand grenade among collected materials. The public can look after workers who handle recycling by not putting in hazardous materials, such as syringes or medical wastes into their recycling bins. People can ensure that they're recycling the right materials for their area's collection by checking their council's recycling services online at RecyclingNearYou.com.au or by calling their local council.

It is always best to live by the recycler's motto “If in doubt, leave it out.”

BUSTED

Myth 9: “Anything ‘recyclable’ should go into my council recycling collection container.”

Council collections aren't the only way to recycle. Broadly, council collections are designed to collect paper, cardboard and packaging materials, however there are other recycling programs designed to collect other materials and products.

These collections are separate to ensure that council collections don't become contaminated and that councils aren't unfairly burdened with any additional costs of extended collection services. Some non-council recycling programs are industry funded as part of their 'extended producer responsibility' (EPR) programs, appropriately paid for by the companies that produce the products in the first place.

For example, the 'Cartridges 4 Planet Ark' program is in part a retail take-back program. Recycling bins are provided at over 2,300 retail outlets, such as participating Australia Post outlets and all Officeworks stores, as these outlets also sell new printer cartridges, you can recycle your empty cartridge when shopping to replace it. Recognising that some organisations use high volumes of cartridges, this program also provides special bins and a collection service to over 13,000 work places.

Plastic bags are another example and generally should go to dedicated supermarket recycling bins. Many charitable recyclers also collect clothes and household products in good condition through goodwill bins. Always put the right thing in the right bin. If in doubt, leave it out.

Details of all other local recycling services and outlets can be found at RecyclingNearYou.com.au, including printer cartridge retail drop off locations, supermarket plastic bag collection outlets, auto-parts recyclers and charitable recyclers.

Myth 10: “The triangular recycling symbol on plastic containers means that I can recycle them.”

Many products claim to be recyclable, even when facilities to recycle them are not widely available. In reality, some recyclable materials aren't commonly collected so for something to be truly called recyclable, it should be a material for which there are widespread and easily accessible collections and recycling systems in place. There are 40 different types of plastic in use today, each with their own chemical composition and properties, making the recycling of plastics particularly confusing.

A Roy Morgan survey conducted for Planet Ark found that nearly half of Australians questioned felt that it is confusing trying to work out what can and can't be recycled^{xxi}. Unfortunately there is a plethora of different recycling symbols and logos that appear on products and packaging as well as special Plastics Identification Codes, almost as hard to decipher as *The Da Vinci Code*. Some of these products are made overseas in countries that often have recycling systems vastly different to those in Australia.



A general recycling symbol (pictured right), involving three chasing arrows or a 'Mobius loop' is usually used to indicate that the material on which it is stamped is recyclable. It may be accompanied by clarifying text, such as "recyclable cartonboard" or "please recycle". This does not necessarily mean that the item can be recycled in your area. Variations of this symbol are often used instead of the basic version for purely aesthetic reasons. For example, the second logo pictured was originally developed as a corporate logo for a government body, but is now sometimes used as a recycling logo.



The Plastics Identification Code

A triangle with a number in the middle is part of the Plastics Identification Code.



Manufacturers stamp plastics with these symbols to help identify the different plastic types. The major plastic types can be recycled more efficiently and cheaply when they are separated from the other 34-odd plastic types. Somewhat confusingly, these symbols are meant to identify the plastic, not to indicate whether or not it can be recycled.

Many councils recycle plastics **1** (PET – clear soft drink bottle plastic), **2** (HDPE – translucent milk bottle plastic, some opaque varieties), **3** (V or PVC) and occasionally **5** (PP – takeaway containers, ice cream tubs). In some cases, councils will only collect certain colours. The industry labelling scheme has led to public confusion and by extension plastic containers are incorrectly placed in recycling bins, leading to the contamination of many local recycling schemes.

At the end of the day, your local council and their recycling contractor determine the scope of your local services and what should and shouldn't go into your recycling bin. Check with them or visit RecyclingNearYou.com.au.

Myth 11: "Recycling is my contribution to the environment."

Many people who say this statement often mean, "household recycling is all I need to do to live sustainably." Although recycling is a great place for people to start learning to live in a sustainable way, it's important to make sure that household recycling isn't their sole environmental effort.

It's crucial for people to understand that recycling can't solve or significantly influence every environmental issue. While there is a greenhouse benefit to recycling overall, electricity production and transportation are far greater contributors to the enhanced greenhouse effect that is causing the climate to change. Recycling is primarily a tool to improve our waste management and to maximise our use of natural resources.

Given the ease with which recycling can be undertaken however, it is often people's first step on the environmental ladder from which they can move on and undertake other actions to minimise the environmental impact of their lifestyle.

One way of measuring a person's overall environmental impact is the 'ecological footprint'. It estimates the amount of land or space needed to provide the resources to support their standard of living.



The amount of waste you produce and recycling you do is only one factor that influences the size of your footprint. Things like the size of your house, your energy use, the kinds of food you eat and the transport you use all affect the size of your footprint. The amount of space available per person on earth is 1.8 global hectares, but is shrinking due to overpopulation, land degradation and pollution. In total, our world's footprint is 2.2 global hectares per person, meaning we are currently living beyond our means. The average Australian ecological footprint is 7.7 global hectares, meaning that at least three additional planet Earths are needed for all of the world's population to have the same standard of living as that enjoyed in Australia.^{xxii} Plainly, sustainable living requires action on a number of fronts above and beyond recycling.

For those wishing to do more, Planet Ark recommends *Greeniology* by Tanya Ha (2006, Melbourne University Publishing) as a practical and fun guide to sustainable living. Buy it online at planetarkdirect.com.

Myth 12: "Rubbish has no use."

Tell that to Merino Pty Ltd. the makers of SAFE toilet tissue, who turn 8,500 tonnes of office paper into household paper products every year.

Another company, Alcoa, use recovered scrap aluminium to make new drink cans. More than two billion aluminium cans are currently recycled every year in Australia, to be turned back into new aluminium products.

Electronic waste or 'e-waste' is one of the fastest growing waste streams in developed nations, due to our rapid uptake and turnover of technology. With these kinds of waste there are non-renewable component materials such as plastics, copper, platinum and even gold trapped within the complex structures of these products. When e-waste is sent to landfill these resources are lost.

'Cartridges 4 Planet Ark' is a pioneering e-waste recycling program in which a zero waste to landfill outcome is achieved for cartridges recycled by Melbourne-based company 'Close the Loop[®]'. The recovered component materials are used as follows:

- **Plastics:** Waste plastics are currently granulated, filtered and made into eWood (a plastic wood substitute product) or further pelletised for reuse as recycle.
- **Aluminium:** Smeltered into new aluminium products.
- **Steel:** Used to make new steel based products.
- **Toner:** Pigment for manufacturing impression moulded plastic pallets and/or pelletising into carbon black for re-use as master batch for a range of industrial applications.
- **Ink:** Inkjet inks are mixed with wood flour and pelletised for use in eWood.

Environmental educators have long had an issue with the words 'rubbish' and 'waste' as they reinforce the thinking that unwanted materials have no inherent value. What one person regards as rubbish or waste, however, is a useful material or product to another.

The popularity of the second-hand trade has shown that one person's trash can be another person's treasure. The success of e-Bay and The Trading Post is testament to this.



Waste from manufacturing processes were once viewed as non-revenue generating by-product, however innovative businesses set themselves the challenge of finding markets for these by-products. As an example, Australian chicken processors once viewed chicken's feet as a waste product until a market for chicken's feet was found in China where they are a popular yum-cha dish, thus turning them into a new revenue stream.

At a household level, the public play an important role in making used material available again for recycling and further manufacturing while also reducing the amount of waste disposed of in landfill. Recovered metals, glass, plastic and paper are tradable commodities used as manufacturing feedstock, just as virgin materials are. ACOR estimates that Australian recycling recovers commodities worth \$912 million each year^{xxiii}. Even food scraps and lawn cuttings can be composted to make plant food for the garden, a recycling process that can take place entirely within a person's property without the need for an outside recycling company to get involved.

“Nature is the most thrifty thing in the world; she never wastes anything; she undergoes change, but there is no annihilation, the essence remains - matter is eternal.”

- Horace Binney (1780-1875), American lawyer

Myth 13: “Old growth forests are destroyed to make Australian newspapers.”

The idea that old growth forests are destroyed to make Australian newsprint is a myth. No old growth wood has been used in Australian newsprint manufacture since 1991. Long before the protection of old growth forests became the issue it is today, Australian newspaper publishers decided to stop using it on environmental grounds, sending a positive environmental signal to other businesses in the process.

In Australia, the pulp for making newsprint comes from:

- De-inked old newspapers and magazines collected through recycling programs, providing 20 – 40% of Australian newsprint content;
- Forest thinnings, which are branches and small trees removed to make room for the growth of timber primarily produced for housing and construction;
- Residue when mature trees are harvested (these trees are replanted after they are harvested) and;
- Saw mill residue, which is the offcut material including sawdust from making sawn timber.

The timber comes from sustainable plantation-based softwood operations in Victoria, New South Wales and Tasmania and re-growth hardwood operations in Tasmania. No old-growth timber is used. The manufacturer, Norske Skog Australasia, abides by the relevant forestry codes of practices in these states.



Australian newsprint is a good example of a product that is both made with recycled content and is fully recyclable when it has been used. Australians are world leaders when it comes to newspaper and magazine recycling with a national rate of 75.4%. Thanks to the efforts of the Australian households that recycle, our newspapers are made with an average of 30% recycled content.

Myth 14: “Aerosol cans can’t be recycled.”

In the findings of the 2005 Roy Morgan Research commissioned by Planet Ark, 54% of respondents thought that aerosol cans could not be recycled. Many thought they couldn’t be recycled because they may explode.

This myth stems from public thinking that small household aerosols are the same as large gas cylinders, fire extinguishers and bottles. Whilst they all contain liquids and gases under pressure, the similarity ends there. In reality, small household aerosols cans are different. They use less volatile fuels and leave only a small percentage of residual product and propellant.

In Australia, the majority of aerosol cans are made from steel and in principle can be recycled in the same way steel food cans are recycled. 383 of Australia’s local councils recycle steel cans through kerbside (household) collections or recycling ‘drop-off’ sites and of these, 333 councils collect steel aerosols¹. These 333 councils represent a population of 17.5 million. In other words, around 85% of the Australian population have access to steel aerosol can recycling services.

If you have aerosol cans to recycle, check if your local council is one of the 333 councils that recycle them by visiting Planet Ark’s recycling guide at RecyclingNearYou.com.au.

To recycle aerosol cans properly, firstly remove the plastic lid and nozzle and put them in with general rubbish. Only recycle empty aerosols. Aerosols that still contain product should be recycled through special chemical and liquid waste collections such as the Sustainability Victoria program ‘Detox Your Home’ (www.sustainability.vic.gov.au) of the NSW Government’s ‘Household Chemical CleanOut’ program (<http://www.environment.nsw.gov.au>).

Myth 15: “Containers should be thoroughly cleaned with labels removed before putting them in your recycling bin.”

In the recycling process, metals and glass are smelted at such high temperatures that any labelling and food residue are burnt off. Excess food residue should be rinsed off (in old dishwashing water) so that it does not contaminate paper and cardboard in the commingled recycling containers. This also helps reduce odours, and attract less vermin.

Many councils also collect recyclable materials in commingled collection containers. These commingled collections take all of the recyclables in one container, as opposed to separating recyclable paper and cardboard from recyclable cans, jars and bottles.

¹ *Cansmart News*, June 2006 – the newsletter of the Steel Can Recycling Council



With this system, there is some risk of liquid or wet waste, soaking the paper and cardboard thus limiting how it can be recycled. As a general rule, recycling doesn't have to be spotlessly clean, but it should be dry. Paint cans should be allowed to thoroughly dry before they are put in recycling bins, whilst hazardous and liquid wastes should be taken to special, dedicated collection points.

Myth 16: "The time to think about recycling is when you're disposing of something."

This attitude waits for a problem to be created and then sets about solving it. Thinking about recycling and waste reduction should begin at the supermarket when people are buying their groceries.

Choices we make at the supermarket ultimately affect what ends up in our bins. For example, coffee beans can be bought whole, ground by the packet or in 'coffee bags'. A pack of ground coffee for a plunger will produce spent grounds (which can be composted) and one foil bag as waste, while a box of coffee bags will result in spent coffee bags (compostable where the bag itself is biodegradable), individual 'foil' wrappers (not recyclable), a recyclable cardboard box and an outer plastic wrap (these are generally not recyclable in kerbside recycling services).

Whenever you buy any product, think about the waste it produces both during and at the end of its life. If it is battery-powered, does it come with a rechargeable battery unit? Does it need refills? How heavily is it packaged? Are there alternatives with less excessive packaging?

Consider buying non-perishable foods and other supplies in bulk as bulk goods use less packaging per unit of product. With perishable goods, make sure you plan your shopping to avoid unnecessary food waste. Something as simple as writing a shopping list can help to significantly reduce food waste, whilst saving money in the process.

Myth 17: "Recycled products are in limited supply."

Many people would be surprised to find out just how many products and packaging materials have recycled content. While not overtly promoted, aluminium drink cans, steel food cans, glass bottles and jars all have some recycled content. For these materials, an amount of scrap feedstock is part of the normal manufacturing recipe.

Australian newspapers have 20-40% recycled content. Many corrugated cardboard and printed cardboard boxes are made with a high percentage of recycled content, typically 70-100%. Packaging containing recycled content blended with virgin materials is often indistinguishable from the alternative.

There are also products that don't just use recycled packaging but are themselves made with recycled content. Safe and Earthwise toilet tissue, facial tissues, napkins, paper bags and paper towels are all made from recycled office waste paper. Every year, they transform over 8,500 tonnes of clean office waste paper into these products.



Greeting cards collected through the 'Cards 4 Planet Ark' recycling program are also recycled to make new products such as packaging and 'SAFE' toilet tissue. Although some timber from sustainably managed plantations is used in the manufacture of paper and tissue products, this resource is better used for building and furniture making, where structural strength is required. Using waste paper to make tissue and paper products and sustainable timber for construction purposes is simply good environmental management that maximises our use of these material resources.

Buying recycled product is important for a number of reasons. It helps to keep the recycling industries and council recycling collections financially viable, while also providing a market and end use for materials that would otherwise be dumped. Buying recycled completes the 'cycle' implied in the word recycling.

An aluminium drink can for example, is used, put out for recycling, collected by a council, sold to a manufacturer who makes it into a new aluminium can, which is filled and sold to a new customer, thus completing the cycle. The process is not complete until the product is again purchased for use.

Ultimately, recycled goods are subject to the same market forces as any other product groups. Supply and demand dictates that business will produce the products that consumers demand, so people can exhibit green consumer behaviour by asking for and buying recycled content products, including:

- **Tissue products** – toilet and facial tissues, serviettes, paper towel.
- **Paper products** – copy paper, gift wrapping paper, envelopes.
- **Landscaping products** – some mulches and compost products are made from recycled materials, as are recycled plastic garden edging, rubbish bins, compost bins and worm farms.
- **Storage products** – IKEA make a range of storage boxes made from recycled cardboard.

Myth 18: "Reuse and recycling have only environmental benefits."

Whereas the environmental benefits of recycling are well documented, the social benefits of recycling and its contribution to communities are less known. These include fundraising for charities, employment and the provision of goods to disadvantaged families.

The triple bottom line approach to evaluation takes environmental, social and financial benefits into consideration, providing a more sound assessment of the subject under consideration. Only recently has this method been applied to recycling. The WA Department of Environment provides one example:

"In 2005, the Waste Management Board released a study into the economics of transporting recyclable materials from rural, regional and remote centres to Perth (and elsewhere) for recycling."

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“This study found that, due to high transport costs and low landfill fees, recycling was not economically viable for most parts of the State outside the Perth Metropolitan Region. However, the study also found that the environmental benefits outweighed any financial losses for nearly all locations in the State. Further, in a number of regional and remote communities, recycling provided significant social benefits that were not quantified in the economic modelling. A number of communities have already recognised the environmental and social benefits of recycling and decided to bear the financial cost of transporting recyclables to market.”²

This Western Australian example is a particularly pertinent case, with WA being one of the Australian states most affected by the tyranny of transporting recyclables over long distances.

Charitable recycling, both informal and through established programs, is an old form of reuse and recycling. For this very reason it is said that the Salvation Army are Australia’s oldest recycling organisation.

One person’s trash is another’s treasure, particularly in an affluent society where products in good working order are thrown out, to be replaced by newer versions or just for purely aesthetic reasons. Many people donate unwanted clothes and household goods to charity collections or put them in goodwill bins, much of which is distributed to disadvantaged people. Other items and clothes are sold through charity stores, generally staffed by volunteers, with funds raised to continue the charity’s other work.

An innovative example of a charitable recycling effort is the Phoenix Fridge Project, run by the Moreland Energy Foundation in partnership with the Brotherhood of St Laurence, St Vincent de Paul, the electrical Trades Union and RMIT TAFE. This initiative reconditions second-hand fridges, which are then distributed to low income households. This makes these fridges more energy efficient and extends their useful life. The outcomes are threefold. Greenhouse gas emissions are reduced compared with the emissions of the fridges in their pre-reconditioned state, low income houses receive a second-hand fridge with a relatively low operating cost and employment and economic opportunities are created.

Charitable recycling programs can also cross borders. Lions Clubs International has been collecting eyeglasses around the world for more than 80 years through the ‘Recycle for Sight’ program. Lions Clubs in countries including Australia, USA and Canada collect the glasses, which are then recycled by being distributed in developing countries. In some of these countries an eye exam can cost a month’s wages, consequently poor eyesight often goes untreated, leading to further complications. The simple donation of unwanted glasses can make a huge difference to someone living in less fortunate circumstances.

“Why should I do anything for posterity? What has posterity ever done for me?”

- Groucho Marx (1890 – 1977)

With manufacturers paying good money for recycled materials to use as feedstock, recycling can also raise funds. Aluminium in particular has always enjoyed good commodity value. In the early eighties, before kerbside recycling programs were

² WA Department of Environment Submission to the Productivity Commission Inquiry into Waste Generation and Resource Efficiency.



established, drink can recycling initiatives such as 'Cash for Cans', were a popular way for community groups to raise funds. According to the Aluminium Can Group, \$5 million was paid to the community for the cans collected in 1980, rising to \$31.6 million in 1985 as the idea took off. More recently, corks are raising funds for non-profit organisations, with cork recycling raising money to build the new elephant enclosure at Melbourne Zoo. In 2003³, Guides Australia's organisations collected corks and raised \$85,650

There is also an employment benefit to recycling. The industry provides jobs both directly and indirectly with the direct employment of member companies of industry group the Australian Council of Recyclers estimated at 5-9,000 jobs⁴.

Finally, we all want a healthy living environment. This can be viewed as both a social and an environmental benefit. Recycling and the avoidance of landfill can prevent the pollution of air, land and ground water – helping to keep our country a great place to live.

Myth 19: “Food scraps and garden waste aren't a recycling issue - they biodegrade in landfill.”

It is true that organic waste will biodegrade in landfill, but slowly and under anaerobic (no air) conditions. In aerobic (with air) conditions, more carbon dioxide is produced, while under anaerobic conditions more methane is produced.

In reality, organic waste can be recycled, both in the backyard and through some council collections. Compost bins and worm farms allow you to recycle food scraps and garden waste within your garden. With many areas of Australia having poor soil, it makes good sense to convert your organic waste into soil nutrients.

Garden and organic waste collected through council programs is generally recycled in one of two ways.

Large scale composting is used to recycle the waste into commercial compost or mulch products. The compost or mulch is then sold to households or the agricultural sector.

It is also being used along with other plant waste from agriculture or industry, as a biofuel in waste-to-energy plants. For example, one company used garden and organic waste from suburban households to produce energy, which was sold as green energy to the electricity retailer Energy Australia. It is potentially more cost efficient, less polluting and better controlled to produce energy from plant waste in a dedicated and enclosed facility than to send the waste to landfill and then tap the landfill gas.

³ Guides Australia Annual Report 2004.

⁴ The Australian Council of Recyclers (ACOR) submission to the Productivity Commission Inquiry into Waste and Resource Efficiency.



Myth 20: “It doesn’t matter what I put in my recycling bin, because it all ends up in landfill.”

This a myth typically perpetuated by people so eager for an excuse not to recycle that they choose to believe without question something that simply isn’t true. Over two billion aluminium drink cans are recycled every year in Australia. These used cans were collected from ordinary Australian homes and other recycling collections. Similarly, all newspapers produced in Australia are made with recycled content averaging 20-40%. This newsprint recycling is made possible because the newspapers that people place out for recycling are collected, sorted and passed on to manufacturing, rather than being sent to landfill.

It does matter what you put in your recycling bin. Recyclable materials have the potential to become new products. Householders play a vital role by making these materials available but need to take care that the wrong things, such as contaminants, aren’t put in recycling bins.

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Conclusions and recommendations

Recycling in a social context

Discussion and studies of waste and recycling tend to prefer a solid grounding in data, science and technology. Such studies would be incomplete without considering the social and psychological context of recycling.

Recycling has always been a case study of community level environmentalism where the behaviour is often seen as a sacrifice for a cause - something done for the environment alone rather than for direct personal benefit. Indeed, the early establishment of kerbside recycling programs in Australia was a response to demand from the community.

Recycling can also be a social statement, in a similar way to clothes forming a fashion statement. Many enthusiastic recyclers do so as a form of altruism, while those who don't recycle are often defensive on the subject, resenting those that make them feel guilty. As a result, people can be passionate about recycling, whether for or against it, which can affect objectivity.

Perhaps the reasons for the perpetuation of recycling myths overlap with the reasons why people feel so strongly about it?

Why recycling myths exist: common themes

There are some common themes among the 20 myths explored in this report. These themes help to explain why recycling myths exist.

One type of myth is a statement commonly given as a reason for not recycling. Examples busted in this report include:

- Myth 1: "Australia has ample space to bury our waste, so I don't need to recycle."
- Myth 3: "Most of our recyclables are exported."
- Myth 4: "All the recycling goes into one truck and is sent to landfill."
- Myth 5: "I don't recycle, it all biodegrades in landfill."
- Myth 6: "Recycling is not worth the effort because it's not economically viable."
- Myth 7: "Recycling doesn't really help the environment."
- Myth 18: "Reuse and recycling have only environmental benefits."
- Myth 19: "Food scraps and garden waste aren't a recycling issue – they biodegrade in landfill."



Another type of myth is one which stems from ignorance, or a lack of information about how to use local recycling services, such as:

- Myth 8: "I can put anything into my council recycling bin, someone else will sort it for me at the recycling plant"
- Myth 9: "Anything 'recyclable' should go into my council recycling collection container."
- Myth 10: "The triangular recycling symbol on plastic containers means I can recycle them."
- Myth 13: "Old growth forests are destroyed to make Australian newspaper."
- Myth 14: "Aerosol cans can't be recycled."
- Myth 15: "Containers should be thoroughly cleaned with labels removed before putting them in your recycling bin."

A final recurring theme is the failure to understand the complexity and diversity of waste and recycling systems and the lack of big picture understanding of recycling within a broader environmental context:

- Myth 2: "Reuse is always better than recycling."
- Myth 11: "Recycling is my contribution to the environment."
- Myth 12: "Rubbish has no use."
- Myth 16: "The time to think about recycling is when you're disposing of something."
- Myth 17: "Recycled products are in limited supply."

Why recycling myths exist: the reasons

Resistance to change

Myths that function as excuses for not recycling often argue against the benefits of, or need for recycling. They perpetuate because they allow people to avoid a sense of obligation to recycle, effectively letting them off the hook. Humans by nature are suspicious and cautious with things unfamiliar, with the extreme being fear of the unknown. Change is to be avoided because it's thought that changing will make life harder. As our lives get increasingly busy, moving away from the convenience of consumption and disposal becomes unattractive although a sense of guilt remains. Some recycling myths help people to alleviate this guilt.

"If a man is offered a fact which goes against his instincts, he will scrutinize it closely, and unless the evidence is overwhelming, he will refuse to believe it. If, on the other hand, he is offered something which affords a reason for acting in accordance to his instincts, he will accept it even on the slightest evidence. The origin of myths is explained in this way."

- Bertrand Russell (1872 - 1970),
British author, mathematician, & philosopher



Misconceptions about sustainable living

Why would people want an excuse not to recycle? Perhaps they mistakenly believe recycling and other greener living habits to be difficult.

When environmental awareness grew towards the end of the 1980's, all sorts of environmental products came onto the market in a rush to meet the demand of the new green consumer.

Many of these products didn't have the benefit of a long development period. Some of the recycled content toilet tissues were very harsh and of low quality. Many of the cleaning products were simply diluted versions of conventional cleaners and water-saving showerheads of the time were poorly designed. Unfortunately, many people were left with the impression that 'green' meant a drop in quality, performance and convenience. Much has changed since then.

Environmental educators have had a tough time working against the stereotypes of living in a sustainable fashion. Most common is the idea that living green results in a drop in a person's standard of living. In reality, sustainable living is about living smarter, rather than harder or doing without.

Green products have now vastly improved so we can still enjoy comfortable living while avoiding or reducing waste and making better use of our material resources. Wasteful habits are like other habits in that they can be difficult to break. However, once bad habits are broken and new, better habits are formed they become the new 'normal'. Recycling and waste minimisation, once they become a habitual part of normal life, are barely noticeable.

Varied and changing systems

Australia's many, varied and changing recycling systems can be blamed for a number of recycling myths and some of the confusion felt by the general public.

Local councils determine the type, frequency and scope of local recycling collections, which can vary from one area to another. People moving houses may find themselves with different bins, systems and requirements in their new neighbourhood.

In addition, recent years have also seen changes in existing recycling programs in many major urban councils, such as upgrades to improved recycling systems or the addition of green waste collection services. In Victoria, for example, changes to WorkCover requirements has forced a widespread swing from crate collection programs to semi-automated single driver systems using wheelie bins.

The current trend is towards more standardised systems within each state or territory. This consolidation and standardisation of recycling services should see a decrease in confusion among householders.

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The global exchange of information

Advances in the way we communicate means information can be accessed from a wide variety of sources, some more reliable than others. This has seen overseas examples and situations inappropriately applied to Australia. For example, the myths surrounding the availability of landfill space are rooted in the spread of media stories about landfill shortages in parts of the USA, UK and Japan.

The availability of information brings both benefits and problems. It has allowed experiences to be easily shared with those of other countries, particularly in how they address their waste and broader environmental problems. These lessons must be taken in the context of their country of origin, understanding that systems that work in Japan, for example, might not work when applied over Australia's great distances or in Australia's political and business culture.

5-minute experts

A side-effect of increased accessibility to information is the tendency for people to think of themselves as informed, when armed with only a superficial knowledge of a subject.

Information can be quickly found, enough to give the impression of a level of expertise that simply isn't there.

Modern media also allows avenues to express that newfound 'expertise'. Talkback radio and television often invite people to air their views. The airtime given to ordinary, non-expert people gives a sense of validation to their opinion. Unfortunately, this exposes listeners and viewers to unreliable information expressed with misleading confidence.

Green is not always black and white

One of the great challenges with science communication is simplifying complicated concepts into accessible, easy to understand statements. The environmental story behind many aspects of recycling can be complex.

Accuracy, however, can be lost in the effort to explain environmental issues in lay terms. As a result, many recycling myths stem from the over-simplification of recycling information, or the failure to appreciate the complexity of environmental issues. Applied to hazardous wastes, the 'reuse is always better than recycling' myth is an example of this, as it complicates a waste and recycling question with health and safety as well as pollution issues.

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We can also take too narrow a focus on recycling. Myths such as “the time to think about recycling is when you’re about to dispose of something” focus on the disposal end of a product’s lifecycle. This myth ignores the opportunities to make a better environmental choice that influences and considers the other stages of the product lifecycle.

At a broader level again, the idea that “recycling is my contribution to the environment” focuses on waste issues, potentially at the exclusion of major issues, such as climate change and water security. These are issues that will have a significant impact on Australia and like recycling are also areas where household, industry and government action can help make a difference.

Perpetuation in media and popular culture

Some myths are perpetuated by media stories and commentators, in which opinion can be interpreted as fact.

Celebrity gardener Don Burke is an infamous example of a prominent recycling detractor, who has been calling recycling a “joke” and “a waste of time” since the late 90’s^{xxiv}. In particular, the *Burke’s Backyard A-Z of the Environment* magazine supplement of 2000 stated:

“There is no environmental reason to recycle plastics. The fuel and energy used collecting and transporting plastics for recycling may actually be detrimental to the environment.”

Had he made any attempt to check this statement against quantitative analysis, such as existing and freely available life cycle assessment reports, he would have found independent and credible information to the contrary.

Don Burke’s attacks on recycling have continued, even as recently as last year in interviews on ABC television:

Landline 14 August 2005: “Obviously, driving a car is bad for the environment, which I do, but I don’t think recycling helps the environment at all - that is the trendy, modern recycling...”

Enough Rope with Andrew Denton 16 May 2005: “I think recycling is a waste of time. It’s a nonsense.”

It is unfortunate that Burke’s ill-informed comments have continued despite the numerous and significant life cycle assessments done on recycling programs in the intervening years.

Popular culture is also a powerful and positive tool. In the USA, the Environmental Media Association has recognised this and has set about incorporating environmental themes, products and habits into television and movies. They provide props and script consulting so that things like household recycling or rubbish-free school lunches are part of the actual scripts in the TV shows they work with.

In Australia, however, we still have magazines showing pretty looking household recycling bins with separate sections for plastic, glass, cans and paper, despite the fact that no kerbside collection requires this level of separation of recyclables. Such media images add to the confusion already felt by the general public.



Recommendations

Recycling myths need to be busted. Removing these misconceptions has the potential to reduce the contamination of recycling collections. Achieving this will reduce the financial costs of collecting and sorting materials and can improve the quality of the resources recovered.

Removing the myths that weaken public confidence in recycling programs will also see better public participation, reducing household waste and increasing recycling rates.

Reducing the impact and perpetuation of recycling myths and misconceptions needs to be a group effort.

Government organisations can make a difference by standardising recycling systems and sharing educational material to ensure a consistent message reaches the public. Standards organisations can further tighten environmental labelling requirements, including the words and symbols allowed to indicate recyclability and recycled content in packaging.

Industry associations and their member companies can work together to ensure that the public don't receive mixed messages from their recycling information or the symbols used on their packaging.

Media outlets and journalists can make sure that they check their facts and consider their presentation, particularly if they are commenting on a complex topic requiring some level of simplification. Information must be sourced from appropriate avenues – if you wanted to know the greenhouse implications of recycling plastic pots, would you ask a specialist in the field of embodied energy analysis of packaging or a horticulturalist?

Households can make sure they know exactly what they can and can't recycle locally by checking with their council, by calling the National Recycling Hotline on 1300 733 712 or by going online at RecyclingNearYou.com.au.

They can also make sure that they're getting their recycling information from the right sources. As media consumers, it's important to remember that new media, such as the Internet, doesn't always allow for high journalistic standards to be applied.

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Appendices

Glossary

Biodegradable - Materials capable of being decomposed back into the environment by natural biological processes.

Biodegrade – To degrade naturally as the result of the action of bacteria.

Energy Recovery - Using the waste type as a fuel to produce heat energy, generally in a power plant to generate electricity.

E-waste - The waste associated with the use and disposal of electronic equipment such as computers, televisions, printers, etc. E-waste can contain a broad range of materials including precious metals (including gold and platinum), toxic heavy metals, metal circuitry, mixed plastics, fire retardants and glass.

Eco-services – ‘Services’ of benefit to humans performed by the environment, such as the removal of pollutants from air and water or the recycling of organic matter through the growth and decay of the carbon cycle. For example, vegetation in catchment areas performs the service of converting precipitation into flows.

Embodied energy – The amount of energy necessary for the fabrication of a specific material or product. When measuring embodied energy, all energy inputs are considered, from raw material extraction, to transport, manufacturing, assembly, transportation, installation and others. Embodied energy as a concept seeks to measure the true energy cost of an item.

Extended Producer Responsibility (EPR) - EPR is a policy approach in which a producer or manufacturer takes responsibility for the environmental impacts of their products through-out the entire life cycle of the product. Traditionally, the environmental responsibility of producers focused on the environmental impacts of their factories. EPR extends this to also include any impacts of the product in its use and ultimately its disposal.

Kerbside Recycling - Recycling collection services, generally provided by local councils, that collect a range of recyclable household materials from recycling containers placed at a household's kerbside (ie: the side of the street). Note that kerbside collections primarily operate in urban areas.

Landfill - An area of land that is designated to contain waste. Waste is deposited in layers, then compacted and covered.

Leachate – A solution formed by leaching. Commonly used to refer to the liquid waste product of landfill sites.

Product Stewardship - The responsible attitude of a manufacturer to ensure that their products have minimal environmental impacts throughout their life. Also see Extended Producer Responsibility, which is similar.

Raw Materials - The basic materials or 'ingredients' used as feedstock for processing into new materials or products. For example, bauxite is the raw material that is processed into aluminium.



Recycling/Recycle - The process where materials used in an item are re-processed into a new commodity or product. 'Recycling' is often used as a generic term, incorporating the concepts of waste reduction, reuse, recovery and reprocessing.

Reduce - 'Reduce' in recycling terms is a method of better using our planet's limited resources by reducing or cutting down on the amount of materials or products we use. For example, we can reduce cartridge waste by cutting back on the amount of printing we do and therefore the number of printer cartridges we use.

Remanufacture - The production of a product from the recovered raw materials sent back to the original equipment manufacturer or another company for reuse.

Resource Recovery - The collection and therefore "recovery" of products and materials from the waste stream for reuse, recycling, energy generation or composting instead of disposal.

Reuse - Repeated use of a product in its same state with minimal processing. Examples of reuse include the reuse of milk cartons as seedling guards for tree planting or the reuse of shopping bags (preferably biodegradable) as bin liners.

Secondary Raw Materials - Like raw materials, these are materials that are used as feedstock or ingredients to make new products. Secondary raw materials are collected recyclable materials, which can be used instead of virgin raw materials in manufacturing with little or no change to the manufacturing process. Secondary raw materials, such as scrap metals, can be traded as commodities.

Take-Back Programs - Waste and recycling programs in which unwanted or used goods are returned to their original manufacturer instead of being disposed of. Ideally, the manufacturer then takes responsibility to ensure that these goods are reprocessed, recycled or disposed of in an environmentally sound way.

Virgin Materials - Basic natural materials that are extracted or harvested and processed into new materials or products. For example, bauxite is the raw material that is processed into aluminium, petroleum for plastics manufacture, iron ore for steel manufacture and wood pulp for paper manufacture.

Waste - Any unwanted by-products of mining, manufacturing, processing, day-to-day living and working and other human activities. Generally, these are the materials for which we have no further use and wish to dispose of.

Waste Avoidance - The management of waste by not creating the waste in the first place.

Waste Hierarchy - The waste hierarchy is a general model that places different approaches to managing waste in an order of priority that reflects their different environmental consequences. The order is: avoid (1), reduce (2), reuse (3), recycle (4), energy recovery (5), and landfill (6). Landfill is the least desirable outcome model. The "3R's" – reduce, reuse & recycle – is a simpler, commonly used version of the waste hierarchy. More complex versions can also be developed and used.

Waste Management - The organised management of waste generation, collection, treatment and disposal practices.

Waste Minimisation - Actions that reduce the total amount of waste that must ultimately be disposed of.

Waste Stream - The collective term for a group of wastes from a common source.



References

- ⁱ Planet Ark ‘The Recycling Olympics Report’, November 2004.
- ⁱⁱ Population density figures from *SBS World Guide* 11th edition (2003, Hardie Grant Books)
- ⁱⁱⁱ While there are many examples of this, an interesting case study is the 1999 proposal to use Australia for an international high level nuclear waste disposal facility, proposed by Pangea Resources Australia Pty Ltd (ownership: 80% British Government through British Nuclear Fuels Ltd (BNFL), 20% Canadian and Swiss companies). The proposal was eventually rejected by WA and SA state parliaments. See also <http://www.mapw.org.au/conferences/mapw2000/papers/veevers.html>. It continues to be raised as an economic opportunity for Australia (eg <http://www.theage.com.au/news/business/sharing-the-vision-for-a-nuclear-future/2006/05/28/1148754873234.html>), perhaps looking for another cash cow to milk after the current resources boom has run its course.
- ^{iv} Australian Greenhouse Office – relative global warming potentials of greenhouse gases on volume basis.
- ^v Sustainability Victoria estimates that 55% of methane is captured for power generation.
- ^{vi} Environmental consultant Jessica North in an ABC Radio National interview *The Science Show*, 10 June 2006.
- ^{vii} UN Economics and Social Council Report of the Secretary-General.
- ^{viii} WWF ‘Living Planet Report’, released July 2002.
- ^{ix} ‘Life Cycle Assessment of Paper and Packaging Waste Management Scenarios in Victoria’ Jan 2001, commissioned by EcoRecycle Victoria and conducted by CRC for Waste Management and Pollution Control, University of NSW, Centre for Design RMIT and Victoria University.
- ^x The *OECD Environmental Performance Review – Australia 1998*, the national report card given to OECD (Organisation for Economic Cooperation and Development) member nations, noted the difficulty in accurate environmental reporting and evaluation in Australia, stating “there is no consistent waste classification system; nor is there reliable, comprehensive information on the amount and composition of waste streams, making it impossible to accurately define the composition of waste or rates of waste generation, or to evaluation waste management practices and performance”.
- ^{xi} Data source: PNEB. Actual figure - 207,463 tonnes of newsprint recovered in Australia is exported.
- ^{xii} PACIA 2005. National Plastics Recycling Survey, prepared by Nolan ITU.
- ^{xiii} Recycled content insulation is a great green product because it makes use of recovered materials AND reduces household greenhouse emissions by reducing the need for additional heating and cooling. Make sure your home/workplace is adequately insulated!
- ^{xiv} William Rathje is co-author with Cullen Murphy of the book *Rubbish! The Archaeology of Garbage* (University of Arizona Press, 2001) <http://www.uapress.arizona.edu/BOOKS/bid1369.htm>.
- ^{xv} *Independent Assessment of Kerbside Recycling in Australia, Volume 1*. Ref: 4046-01 (<http://www.deh.gov.au/settlements/publications/waste/covenant/kerbside/index.html>)
- ^{xvi} From *An Essay on Criticism*, 1709. Full passage: “A little learning is a dangerous thing; drink deep, or taste not the Pierian spring: there shallow draughts intoxicate the brain, and drinking largely sobers us again.”

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^{xvii} It should be noted that it is very difficult to assign monetary values to environmental benefits. The costs and benefits of recycling can be influenced by a number of factors and can vary between individual situations, particularly in Australia with its demographic diversity. The real benefit of this study was to get a national triple bottom line perspective of recycling.

^{xviii} The Australian Council of Recyclers (ACOR) submission to the Productivity Commission Inquiry into Waste and Resource Efficiency.

^{xix} ‘Life Cycle Assessment of Paper and Packaging Waste Management Scenarios in Victoria’ Jan 2001.

^{xx} ‘Benefits of Recycling’ report by Nolan-ITU, May 2005.

^{xxi} Roy Morgan Research conducted for Planet Ark, 2005 (*Planet Ark National Recycling Report*)

^{xxii} EPAVIC-WWF. 2004 Living Planet Report

^{xxiii} The Australian Council of Recyclers (ACOR) submission to the Productivity Commission Inquiry into Waste and Resource Efficiency.

^{xxiv} “...he slams the conservation movement. Brands recycling as “a joke”.” And “Most recycling is a joke. Recycling paper is a waste of time, as is the recycling of most plastic.Having a worm farm is a joke. Putting worms in the soil is what’s important.” – Don Burke quoted in an story in the *Herald Sun* newspaper 21 April, 1999.

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