Measuring the Impact of the Charitable Reuse and Recycling Sector

A comparative study using clothing donated to charitable enterprises

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Measuring the Impact of the Charitable Reuse and Recycling Sector: A comparative study of clothing A comparative study using clothing donated to charitable enterprises

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Disclaimer

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Executive Summary

The Charitable Reuse and Recycling Sector plays a vital role in the move towards a circular economy in Australia. By re-selling goods, especially clothing and textiles, this sector extends the life of products and reduces the need for new products to be manufactured from raw materials. Moreover, the funds raised through these sales provide support for a wide range of social assistance programs.

This report seeks to fill the gap in knowledge about the specific impact the reuse and recycling of clothing has on sustainable outcomes in Australia. Through analysis of the difference between clothing sent to landfill and clothing donated to Charitable Reuse and Recycling Enterprises, it demonstrates the positive impact of the sector on economic, social and environmental bottom line calculations.

Key Findings - Donations

A total of 1,005,952 tonnes of donated products, including clothing, furniture and bric-a-brac, are processed by the Charitable Reuse and Recycling Sector per year. 310,316 tonnes (31%) of this is clothing.

An average charity shop receives 376 tonnes of donated products per year: 339 tonnes are donated instore and 37 tonnes are received through collection bins.

The average amount of donated products is 39kg per person per year. With an average 12.1kg of clothing textiles donated per person in Australia.

Of the clothing processed by the Charitable Reuse and Recycling Sector 16.5% is sold at a charity shop, 0.4% is provided as welfare, 36% is recycled domestically, 33% is exported and 14% is sent to landfill.

Charities provide support to the community. Retail outlets for charities are often put in place to provide revenue to fund its community programs.

Through the sale of donated products such as clothing, furniture and bric-a-brac, this study found that a typical charity shop generates \$359,144 in revenue per year. Despite clothing making up only 31% of donated products, the sale of clothing generates 55% (\$197,132) of a typical charity shop's annual revenue. An annual cost of \$7,243 is incurred by a typical charity shop for disposal of clothing to landfill.

Across the sector this equates to \$961 million AUD in revenue per year.



Key Findings - Impact

In diverting the 310,316 tonnes of clothing from landfill the sector also:

- reduced carbon emissions across the supply chain by 66% 466,000 tonnes CO₂-e/yr versus 1,354,000 tonnes CO₂-e/yr for total clothing sent to landfill
- reduced global water consumption by 57% 65, 510 ML/yr versus 153,937 ML/yr
- reduced global energy use by 59% 1,281,029 MWh/yr versus 3,167,918 MWh/yr
- generated more value to the Australian economy \$1,700 revenue per tonne of clothing recovered through a Charitable Reuse and Recycling Enterprise, versus \$120 per tonne if disposed in a landfill
- provided 46% more jobs 5,300 total in the sector. 1,200 of these are individuals who face barriers to employment

The sector provides valuable work experience for people who face challenges finding employment in other sectors, and ongoing opportunities for meaningful community engagement for retired individuals. The sector also provided volunteer places for more than 33,500 individuals, or 23 people per store.

The full results of the study, presented per tonne of clothing in Table 1 below, were determined via a triple bottom line assessment, using a case study methodology comparing the following two scenarios:

- Scenario 1: Assume no reuse and recycling from the Charitable Reuse and Recycling Sector, therefore all clothing waste is disposed of to landfill; and
- Scenario 2: Clothing donated to Charitable Reuse and Recycling Sector Enterprises for reuse and recycling.



Table 1: Triple Bottom Line Results

Aspect/Metric	Unit	Scenario 1	Scenario 2	Difference		
Environmental						
Clothing diverted from landfill	Tonnes	0	1			
Electricity consumption	MWh	10	4	-59%		
Gas consumption	MJ	1.5	1.5	0%		
Water consumption	ML	0.50	0.21	-57%		
Greenhouse gas emissions	tonnes of CO2-e	4.4	1.5	-66%		
Financial						
Revenue per tonne of clothing	\$	120	1,700	1,317%		
Social						
Number of FTE jobs - mainstream labour-market	FTE/ 10,000t	Unknown	39			
Number of FTE jobs - individuals facing barriers to employment	FTE/ 10,000t	2.8 ¹	170.6	61%		
Number of FTE volunteer positions	FTE/ 10,000t	0	1,082			

There were some limitations to this study. In particular there is no reliable data on total volume of clothing bought in Australia or disposed to landfill, MRA relied on ABS data for all textiles in Australia, or industry estimates based on the production of polyester fibres, which is not a sufficient proxy. Also, data on employment in landfills and the resource recovery sector is out of date. The last reliable figures for Australia are from 2009. Work to collect or update this information would benefit future analysis.

¹ Access Economics, Employment in waste management and recycling (July 2009), commissioned by the Department of Environment, Water, Heritage and the Arts.



1 Introduction

The Charitable Reuse and Recycling Sector in Australia offers many benefits that go beyond reducing waste sent to landfill. These include direct and indirect environmental benefits, such as reduced consumption of resources, as well as economic and social benefits through volunteering and creating entry level work. Revenue raised by charitable enterprises contributes to the financial stability of their parent organisations, ensuring they can deliver social welfare initiatives to the community.

This report quantifies some of the impacts of the Charitable Reuse and Recycling Sector in Australia using the case study of clothing textiles recovered via charitable recycling enterprises. This is achieved by comparing the donation and reselling of clothing through the Charitable Reuse and Recycling Sector with disposal of the same quantity of clothing to landfill.

Increasing concern about fast fashion has drawn attention to the environmental, social and ethical impacts of the fashion industry. While the manufacture, supply and consumption phases of a clothing's lifespan have been closely scrutinised, only a small number of reports have looked at the disposal or recycling of clothes.

Furthermore, there is a lack of reporting in the context of the Charitable Reuse and Recycling Sector in Australia. This report aims to fill that gap, providing a data-driven and evidence-based snapshot of the value of the Charitable Reuse and Recycling Sector in Australia.

1.1 Purpose

MRA Consulting Group (MRA) was engaged by Charitable Recycling Australia to report on the social, environmental and economic impacts of clothing sales through charity shops.

The aim is to inform the government on how to best support and enable the Charitable Reuse and Recycling Sector and deliver Australia's circular economy targets. This project contributes to the National Waste Plan's goal of making "comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions"².

The objectives of the project include:

- To quantify and communicate the social, environmental and economic benefits of Charitable Reuse and Recycling Enterprises;
- To use the case-study of clothing textiles, and extrapolate the total impact of the Charitable Reuse and Recycling Sector; and
- To demonstrate that the Charitable Reuse and Recycling Sector is impactful, efficient and can play a role in delivering waste management, economic-development and social welfare outcomes.

The analysis is underpinned by a triple-bottom line (social, environmental, economic) assessment, comparing two scenarios:

- Scenario 1: Assuming no reuse and recycling from the Charitable Reuse and Recycling Sector, therefore all clothing textile waste is disposed of to landfill; and
- Scenario 2: Clothing donated to Charitable Reuse and Recycling Sector Enterprises for reuse and recycling.

The unit of comparison is a tonne of clothing received by a landfill, or by a Charitable Reuse and Recycling Enterprise.

² National Waste Policy: less waste, more resources (2018) prepared by the Australian Government, State and Territory Governments & the Australian Local Government Association.



1.2 Charitable Recycling Australia

Charitable Recycling Australia ("Charitable Recycling") is an Australia-wide peak body representing the Charitable Reuse and Recycling Sector. It is made up of a network of 89 enterprises including Australia's leading charitable recycling organisations such as the Salvation Army, Australian Red Cross, St. Vincent de Paul Society, Save the Children, Lifeline, Uniting Care, Anglicare, RSPCA, Red Nose and many others. Charitable Recycling advocates for its members and engages with governments and communities to advance the circular economy and reduce charitable costs.

There are approximately 2,700 charity shops and social enterprise reuse centres in Australia. The majority of charity shops are in Queensland, (28%), NSW (25%) and Victoria (24%)³ (refer to Figure 1).



Figure 1: Number of charity shops by state

The Australian public donate a wide variety of goods to charitable retailers, who sort these items for potential resale or use by their community programs. If products aren't suitable for reuse, they may be recycled into other products, for example some clothing is recycled into rags which are used by cleaners, mechanics, equipment hire companies, etc.

Revenue raised through selling donated products supplements direct financial donations to provide essential social welfare initiatives to the community.

Figure 2 shows the variety of products sold by charitable retailers, and the types of community service initiatives supported by their revenue streams.

³ Charitable Recycling Australia data (2020).



Figure 2: Products sold in charity shops and initiatives supported by funds raised



1.3 Charitable Recycling and the Circular Economy

A circular economy seeks to design out waste and pollution, keeping products and materials in use for as long as possible. The Charitable Reuse and Recycling Sector is an important component of a circular economy (Figure 3), providing established infrastructure and systems for redistribution to parts of the economy where goods are needed. The sector is a leading contributor to the waste hierarchy tiers of avoiding, reducing, re-using and recycling waste (Figure 4).

Circular Economy principles underpin Australia's latest National Waste Policy (2018) which "acknowledges the need to improve our capacity to better design, reuse, repair and recycle the goods we use"⁴. The Charitable Reuse and Recycling Sector contributes to the following 2030 national targets⁵:

- Reduce total waste generated in Australia by 10% per person; and
- Achieve 80% average resource recovery rate from all waste streams following the waste hierarchy.

⁴ National Waste Policy: less waste, more resources (2018) prepared by the Australian Government, State and Territory Governments & the Australian Local Government Association.

⁵ National Waste Policy Action Plan (2019) prepared by the Australian Government, State and Territory Governments & the Australian Local Government Association.



Figure 3: Product and material flows in a circular economy



Figure 4: The waste hierarchy

MOST PREFERABLE



Source: National Waste Policy 2018

Production of new clothing consumes valuable resources, agricultural products and associated fertiliser or feed for natural fibres and petroleum derivatives for synthetic fibres. All stages of production use energy and water, and result in the emission of greenhouse gases.



A Waste and Resources Action Programme UK (WRAP) report into the lifecycle impact of clothing found that: "In the UK, the estimated average lifetime for a garment of clothing is 2.2 years, or just under two years and three months. Extending the active life of clothing by nine months can make a substantial difference to its resource impact. In fact, increasing the lifetime for which clothing is actively used and re-used is one of the most effective actions to reduce footprints for carbon, water and waste – as well as offering valuable savings on resource costs"⁶.

Reuse and recycling extends the lifespan of clothing, thereby reducing the amount of clothing sent to landfill and reducing resource use and emissions associated with clothing production. Extending the lifespan of clothing reduces the need for consumers to purchase new clothing made from virgin materials.

Figure 5: Clothing flow in Australia



Source: MRA Consulting Group

The material flow of clothing has faced increased scrutiny following the emergence of fast fashion. Fast fashion is the rapid and cheap production of clothing to meet consumer demand for the latest fashion trends⁷. Fast fashion encourages increased consumption of clothing and a throw-away mindset as items no longer considered trendy can be cheaply replaced. The Charitable Reuse and Recycling Sector plays an important role in reducing this impact, as it is one of the ways to loop clothing back through the system.

2 Method

The results in this report were determined through a comparison of the triple bottom line of a tonne of clothing in Australia going to landfill versus a tonne of clothing being collected through a Charitable Reuse and Recycling Sector Enterprise.

⁶ Valuing our clothes: The true cost of how we design, use and dispose of clothing in the UK. WRAP (2017), pg 23. http://www.wrap.org.uk/sustainable-textiles/valuing-our-clothes

⁷ The environmental price of fast fashion (2020), Nature Reviews, Niinimaki et al.



Detailed data was collected from 27 Charitable Reuse and Recycling Sector Enterprises, representing 53% of charity shops in Australia. This data was extrapolated to represent the contribution of all charity shops in Australia and ensure a fair comparison with more comprehensive landfill data.

This section details the methodology.

2.1 Data collection

Interviews were conducted with five Charitable Reuse and Recycling Sector Enterprises to gather relevant information on the operation of the sector (refer to Appendix A for a list of enterprises interviewed). The interviews identified the following information was most relevant to analysing the sector: distribution of charitable clothing operators, collection networks, number of employees, types of employees, water and energy usage, revenues generated, related costs, export markets and activities carried out for the diversion of clothing textiles from landfill.

A comprehensive survey was drafted based on the information identified in the interviews and distributed to all Charitable Recycling Australia members. 27 survey responses were received including responses for individual stores or for a charity representing multiple stores.

The 27 survey results covered 1,413 charity shops from metropolitan, regional and remote areas across Australia, representing 53% of the total number of charity shops in Australia (2,676).

2.2 Desktop research

Following analysis of the interviews and surveys, desktop research was carried out to help fill in identified information gaps, including data on the costs, employment figures and environmental impacts associated with landfills in Australia, and industry data to determine the impact of clothing manufacture and production.

2.3 Triple-bottom line assessment

Using the data gathered during the desktop research and consultation process, a triple-bottom line assessment was undertaken to model the following scenarios:

- Scenario 1: Assume no reuse and recycling from the Charitable Reuse and Recycling Sector, therefore all clothing textile waste is disposed of to landfill; and
- Scenario 2: Charitable Reuse and Recycling Sector business as usual, based on actual data on landfill diversion provided by Charitable Reuse and Recycling Sector Enterprises.

The metrics for the three aspects of the triple-bottom line assessment are outlined in Table 2. Environmental impacts were quantified based on the production of 1 tonne of clothing comprised of 73% cotton and 27% polyester⁸.

Table 2: Triple-bottom line impacts

Aspect	Metric
Environmental	 Total tonnes of waste diverted from landfill Energy consumption Water consumption Greenhouse gas emissions (measured as tonnes of CO₂-e) including landfill emissions, transport and processing emissions

⁸ Refer section 2.6 for assumptions and extrapolation method for this ratio.



Aspect	Metric
Social	 Number of full-time equivalent (FTE) jobs created (for individuals facing barriers to employment) Number of FTE jobs created (mainstream labour-market) Number of volunteer positions created Impact on community

2.4 Useful life of a garment

An interesting finding from the in-depth interviews was that the analysis could not assume a 1:1 replacement of recycled clothing for new clothing. While every garment sold through a charity shop is a replacement for a new purchase it is not as straightforward as this. In determining the impact of a tonne of clothing moving through the charitable reuse and recycling system versus a tonne of clothing going to landfill, it was necessary to determine the useful life of a garment.

This concept is shown in Figure 6. Where a garment is sold through a charity store it is likely to have already expended a percentage of its useful life with previous owner(s) and so the replacement time for that garment will be shorter than for a new garment that is worn and maintained by a single owner for its entire useful life.

Figure 6: Useful life of a garment under three scenarios



After a literature review, MRA chose to use the WRAP methodology with a displacement rate of 60%. This figure assumes that 60% of reuse purchases avoid the purchase of a new item (and the effects associated with production and distribution of a new item), a further 16% is displacement of an old/reused item and 24% does not displace clothing – the reused item is an additional purchase⁹.

2.5 System boundary and modelling assumptions

When performing a case-study comparison it is important to define the system being analysed. For this project the system was defined as follows:

Clothing received by a Charitable Reuse and Recycling Sector Enterprise in Australia, focussing on the point of collection until the point of sale, export or landfill. The analysis does not include clothing that may be collected by a third party commercial provider on behalf of a charity. It includes the environmental impacts of production and distribution.

The system is shown in Figure 7.

⁹WRAP (2021), Benefits of Reuse. Case Study: Clothing.



Figure 7: System boundary and internal flow for modelling



Source: MRA Consulting

There are 89 Charitable Reuse and Recycling Sector Enterprises in Australia with approximately 2,676 charity shops. MRA received survey responses from 27 enterprises representing 1,413 charity shops, making up 53% of charity shops across Australia. In order to extrapolate impact data across the entire sector MRA weighted the survey data based on the number of stores represented in the response. This was to ensure a result per store rather than a result per respondent. The resulting weighted data was then extrapolated to cover 100% of the sector.

The environmental impacts related to energy, water consumption, and GHG emissions were quantified based on the production of 1 tonne of clothing and the following assumptions:

- A tonne of clothing is made of 73% cotton and 27% polyester⁸.
- 3,456kL of water is consumed per tonne of clothing produced¹⁰. This is a weighted average for cotton and polyester garments and includes fibre and textile production. Location of production is unknown. Water consumption for the sale phase is based on water usage on site (charity shops), as provided in the survey results. Retail shops selling new garments are assumed to have a similar consumption of water, as they are both retail spaces.
- 73,360kWh of energy is consumed per tonne of clothing produced¹¹. This is a weighted average for manufacturing cotton and polyester garments, and does not include the packaging, transport and sale of the clothing¹². Location of production is unknown. Energy consumption for the sale phase is based on electricity and gas consumption per site (charity

¹⁰ Ellen Macarthur Foundation (2017), A New Textiles Economy: Redesigning fashion's future.

¹¹ Woolridge et al. (2005) Life cycle assessment for reuse/recycling of donated waste textiles compared to use of virgin material: a UK energy saving perspective.

¹² Energy consumption for packaging and transport were not considered in this analysis as available data was unreliable, and it was assumed to be the approximately same under both scenarios and so does not make a difference in comparing the two case studies. However, energy consumed at the point of sale is considered in the form of gas and electricity for retail spaces.



shop) as provided in the survey results. Retail shops selling new garments are assumed to have a similar consumption of energy, as they are both retail spaces.

- 23.73 tonnes of CO₂-e emissions per tonne of clothing are associated with the production and distribution of new garments¹³. This is a weighted average for cotton and polyester garments, and includes fibre, yarn, fabric and garment production, and distribution for sale. Production is assumed to occur mainly in Asian countries and distribution is to the UK. The distribution to Australia is assumed to be similar.
- 2 tonnes of CO₂-e emissions per tonne of clothing are generated when clothing is disposed to landfill¹⁴. A landfill gas capture rate (lifetime) of 50% is assumed based on average Australian landfill performance. Landfill emissions for Scenario 2 only include the disposal of clothing residuals from Charitable Reuse and Recycling Sector operations.
- The use phase of clothing was not included when calculating the environmental impact as it is assumed to be the same for new and used clothes, e.g. the same number of washes is required.
- GHG emissions for transport of clothing to landfill for Scenario 1 are negligible as compared the emissions of clothing in landfill (out by orders of magnitude) and so were not calculated. This determination was based on the very small fraction of clothing textiles in the kerbside waste stream (<3.3%)¹⁵
- GHG emissions for domestic transport of clothing for Scenario 2 is based on a light commercial vehicle and rigid truck using diesel as fuel. Overseas transport of clothing is based on maritime transport (cargo using fuel oil) from Sydney to Port Moresby, Papua New Guinea, as this was the most common destination reported in the survey results.
- It is assumed that the Charitable Reuse and Recycling Sector does not produce new garments. Hence consumption of water, energy and GHG for production of new garments in Scenario 2 is estimated using a displacement rate of 60%.

Assumptions used for calculating social impacts related to modelling incomplete survey data sets to convert hours to FTE or vice versa. Respondents were able to report either FTE or hours in their response, so modelling used data received from other respondents to convert the required values:

- Paid employee hours, including disability and other supported wages were converted at 35 hours per person per week for 48 weeks a year.
- Volunteer hours, including work experience, were converted at 10 hours per person per week for 48 weeks of the year.
- Work for dole hours were converted to FTE at the ratio prescribed by the Department of Education, Skills and Employment ¹⁶.
- People working as part of community service or work development orders were assumed to work 100 hours per person per year, based on a reported range of 50-250 hours per person where 100 hours was the median value.

2.6 Data limitations

Reliable public data regarding overall clothing generation, consumption and disposal in Australia was difficult to attain. Australian Bureau of Statistics (ABS) data for textile disposal to landfill includes textiles other than clothing, such as carpets and therefore does not capture disposal of clothing alone,

¹⁵ Textiles, rubber and leather (as labelled in the National Waste Report) are 3.3% of MSW sent to landfill. A

fraction of this is clothing. National Waste Report (2020) Blue Environment.

¹³ A Carbon Footprint for UK Clothing and Opportunities for Savings (2012) WRAP.

¹⁴ National Greenhouse Accounts Factors (2020) Department of Industry, Science, Energy and Resources.

¹⁶ https://www.employment.gov.au/work-dole-information-job-seekers



nor the composition of fibres in clothing. Thus the analysis was restricted by the lack of precise information on elements such as:

- Fibre or textile types, for example cotton, polyester and wool;
- Garment types, for example t-shirts and jumpers; and
- Phase of life, for example fibre production, textile manufacture or distribution.

Development of these data sets should be a priority to improve analysis of domestic clothing flow.

Water consumption, energy consumption and greenhouse gas emissions differ greatly based on fibre or clothing type. In general, water consumption is far greater for cotton clothing compared to synthetic fibre clothing, such as polyester¹⁷. The opposite is generally true for energy consumed and greenhouse gases emitted. This effect is evident in the comparison of environmental impacts associated with the production of different fibre types (Figure 8). Note that these impacts only account for the production of fibre, whereas the analysis undertaken for this project also includes other phases of production, for example, yarn & garment production and transport.



Figure 8 Environmental impacts of the production of different fibres

Source: The environmental price of fast fashion (2020) Nature Reviews, Niinimaki et al.

Other factors, such as where and how production occurs, also impact the environmental footprint of clothing. For example, energy sources and farming practices vary between countries, regions and sites. Clothing production in China uses coal-based energy leading to a larger carbon footprint than textiles produced in Europe, and organic cotton production emits lower levels of greenhouse gas than conventional cotton production¹⁷. These limitations mean that data is not representative of all clothing in general and caution must be used when drawing conclusions and comparing different clothing types or even the same type of clothing from different producers.

As there is a lack of available data on the composition of clothing in Australia, and the associated environmental impacts, this analysis models a bundle of clothing comprised of 73% cotton fibres and 27% polyester fibres. Cotton and polyester were chosen for this triple bottom line assessment as these two fibres, and their blends, comprise the majority of fabric used to manufacture clothing, and could be used as a proxy for environmental impacts associated with natural fibres (cotton, wool, linen) and synthetic fibres (polyester, nylon, rayon). Once these two fibres types were chosen, MRA analysed UK clothing data¹⁸ that showed cotton and polyester comprised 43% and 16% of all fabric

¹⁷ The environmental price of fast fashion (2020) Nature Reviews, Niinimaki et al.

¹⁸ WRAP (2012), A Carbon Footprint for UK Clothing and Opportunities for Savings.



types, respectively. These two values were extrapolated out to cover 100% of all clothing, resulting in a ratio of 73:27.

Sources were selected that encompass the entire process of cotton and polyester clothing production and not just the production of fibre. This enables the comparison of purchasing new clothing with reusing existing clothing.

This analysis is not considered a life cycle assessment (LCA) as it does not encompass the total impact on the environment. Examples of other environmental impacts not considered include:

- Agricultural pollution through the use of fertilisers to grow cotton;
- Chemical pollution such as dye bleaching produced during production of cotton textiles;
- Release of microplastics to the environment;
- Textile waste produced during the manufacturing and retail phases; and
- Sequestering of atmospheric carbon through production of natural fibres.

3 Results

3.1 The Charitable Reuse and Recycling Sector

Responding charities covered a wide range of areas across Australia. 70% of respondents reporting that they operate in metropolitan areas, 78% in regional and 56% in rural areas. A large proportion of respondents operated in all three areas.

Vinnies, Salvos, Red Cross and Lifeline provided data for the greatest number of charity shops. Responses from Vinnies included 549 stores across five states and territories: NSW, NT, QLD, VIC and WA; making up approximately 20% of all charity stores across Australia (not just those covered in the survey). Salvos responses included 342 stores across all states and territories, 13% of all charity stores in Australia. Charities with smaller numbers of stores (0-30) also provided survey responses. Responses were weighted based on the number of charity shops operated by the charity, and therefore their share in the Australian market.

MRA calculated that a total of 1,005,952 tonnes of donated products, including clothing, furniture and bric-a-brac, are processed by the Charitable Reuse and Recycling Sector per year. An average charity shop receives 376 tonnes of donated products per year: 339 tonnes are donated instore and 37 tonnes are received through collection bins.

Based on Australian Bureau of Statistics (ABS) population data, the total number of charity shops per state¹⁹ and the calculated average tonnes received per charity shop, the average kilograms of donated products per person in Australia is 39kg per year. Tasmania has the highest average weight of donated products per capita at 67kg while the ACT has the lowest at 14kg. The per capita breakdown by state is provided in Figure 9.

¹⁹ Charitable Recycling Australia data (2020).







3.2 Generation of clothing textiles

A total of 310,316 tonnes of donated clothing is processed by the Charitable Reuse and Recycling Sector per year.

For the average charity shop, 116 tonnes of the total 376 tonnes of products donated are clothing textiles (or 31%). Overall, this equates to an average of 12.1kg of clothing textiles donated per person in Australia.

Almost all charitable retailers accept clothing donations in-store (93%) and via donation bins (81%) while a smaller proportion accept them via corporate donations (59%) (refer to Figure 10). The largest quantity of clothing (55,400 tonnes) is received through in-store donations followed by donation bins (11,400 tonnes) and through transfer stations or warehouse drop-offs (2,147 tonnes).





Figure 10 Method of collection and tonnes of clothing donations received

Once received, clothing is sorted based on its quality and processed accordingly: 16.5% is sold at a charity shop, 0.4% is provided as welfare, 36% of clothing is recycled domestically, 33% is exported and 14% is sent to landfill.



3.3 Triple bottom line assessment results

Results are shown as per tonne of clothing (Table 3) and for the total sector (Table 4).

Aspect/Metric	Unit Scenario 1 Scenario 2		Scenario 2	Difference		
Environmental						
Total tonnage of clothing diverted from landfill	Tonnes	0	1			
Electricity consumption	MWh	10	4	-59%		
Gas consumption	MJ	1.5	1.5	0%		
Water consumption	ML	0.50	0.21	-57%		
Greenhouse gas emissions	tonnes of CO2-e	4.4	1.5	-66%		
Financial	Financial					
Revenue	\$	120	1,700	1,317%		
Social ²⁰						
Number of FTE jobs - mainstream labour-market	FTE/ 10,000t	2.8 ²¹	170.6	61%		
Number of FTE jobs - individuals facing barriers to employment	FTE/ 10,000t	Unknown	39			
Number of FTE volunteer positions	FTE/ 10,000t	0	1,082			

Table 3: Triple Bottom Line Results – per tonne of clothing

²⁰ Reported as per 10,000t of clothing, as per Access Economics methodology.

²¹ Employment in waste management and recycling, Access Economics (2009). Commissioned by the Department of Environment, Water, Heritage and the Arts.



Table 4: Triple Bottom Line Results – per year

Aspect/Metric	Unit	Scenario 1	Scenario 2	Difference	
Environmental					
Total tonnage of clothing diverted from landfill	tonnes/yr	0	310,316		
Electricity consumption	MWh/yr	3,167,918	1,291,029	-59%	
Gas consumption	MJ/yr	476,100	476,100	0%	
Water consumption	ML/yr	153,937	65,510	-57%	
Greenhouse gas emissions	tonnes of CO ₂ -e/yr	1,353,753	465,604	-66%	
Financial					
Total revenue for the sector	\$M/yr	120.7	961.1		
Total revenue (for clothing)	\$M/yr	37.2	527.5		
Revenue per tonne of clothing	\$/t	120	1,700		
Social					
Number of full-time equivalent (FTE) jobs created (individuals facing barriers to employment)	FTE/yr	Unknown	1,211		
Number of FTE jobs created (mainstream labour-market)	FTE/yr	87 ²²	4,084	46%	
Volunteer positions created	FTE/yr	0	33,576		

3.4 People

Alongside the valuable role charitable recycling stores provide through the reselling and recycling of goods is the contribution they make to the community by providing employment and volunteer opportunities, especially for those who face challenges finding employment in other sectors.

Table 5 provides a breakdown of people who work at charitable recycling stores. Of the 5,295 full time roles in the Charitable Reuse and Recycling Sector, 11.3% (601) are employees with a disability while 11.5% (611) are on supported wages. The sector also provides 33,500 volunteer opportunities for retirees, students and mutual obligation workers. It is worth noting that alongside their employment training, these workers are getting a strong grounding in the sustainability principles of reducing,

²² Based on 310, 316 tonnes clothing sent to landfill.



reusing and recycling. The Charitable Reuse and Recycling Sector therefore plays an important role in creating sustainability ambassadors who will spread the word through other sectors of the community.

Category	Findings
Paid employees	Full time employees: 5,295
	Of which 601 FTE were reported as employees with disability and 611 are on supported wages.
	An average store employs 3 FTE.
Volunteers	Modelling suggests that the sector provides volunteering opportunities for 33,500 individuals.
	An average store has 23 volunteers working on average 4 hours a week. Some stores reported that volunteers worked up to 10 hours a week.
Indigenous employees	13 enterprises indicated they employ indigenous people. Weighted for number of stores, this represents 75% of the sector.
	One responding enterprise identified as an aboriginal enterprise.

3.4.1 Volunteering

MRA modelled a total of 9.2 million hours of volunteering across the Charitable Reuse and Recycling Sector in a single year, for 33,500 individuals with the average volunteer working 4 hours per week.

Volunteering has longevity and can lead to paid employment. 17 enterprises reported that their volunteers stayed with the enterprise for three of more years. 17 enterprises reported that their volunteers moved into paid employment with the enterprise, at a rate of approximately 5% on average.

Enterprises reported on a variety of ways that Australians volunteer in charity stores. The most common form is retired individuals donating their time to keep the store running. 19 enterprises reported that the average age of their volunteers was over 60. Three enterprises had an average age range of 41-50, and one QLD enterprise reported that their average volunteer was aged in their 30s. Charity shops also provide options for shorter term volunteering, such as high school work experience and mutual obligation volunteers, as detailed below.

Mutual obligation volunteers

21 enterprises said that they supported mutual obligation volunteers, such as people needing to work off community service orders, work development orders, or those who chose to use a work for the dole option as part of their income support requirements.

Enterprises reported that, on average, 17% of their volunteers were under some form of mutual obligation, however the range of reported percentages was 1%-75%.

The modelled break-down of hours and people are shown in Table 6. The unit of reporting was chosen based on the most meaningful representation of contribution from that volunteer type. MRA modelled the number of individuals on a work for the dole scheme using publicly available scheme requirement information. Conversely there is variation in how many hours an individual may need to serve a community service or work development order, so assigning this to individuals would be



problematic, especially given the low number of enterprises that responded with data on this volunteer type.

Table 6: Mutual Obligation Volunteers

Type of mutual obligation	Units	Value	Number of respondent enterprises (n)
Work for the dole	Number of people	5,457	18
Community Service Orders	Volunteer hours	14,450	6
Work development orders	Volunteer hours	2,378	3

3.4.1 Training pathways

Almost all enterprises that responded provide additional training for their employees and volunteers.. This training aligns to the mission of most charitable enterprises to provide support and opportunities to the community. Only 6 of the 27 enterprises did not provide some form of additional training.

The most common form of certification related to retail skills which would enable employees and volunteers to demonstrate their skills and secure ongoing employment outside the Charitable Reuse and Recycling Sector. Other skills and certificates related to hospitality, warehousing, driving, workshop manufacture and test and tag certification

3.5 Planet

The total environmental impact of both scenarios included evaluation of GHG emissions, water consumption, energy consumption and waste diverted from landfill. Scenario 1 assumes that the 310,316 tonnes of clothing received by the Charitable Reuse and Recycling Sector each year is instead disposed of to landfill. Reuse of clothing via the Charitable Reuse and Recycling Sector results in a displacement effect whereby reuse of clothing results in a 60% reduction in the production of new clothes.

3.5.1 Greenhouse gas emissions

GHG emissions per tonne of clothing for both scenarios:

- 4 tonnes of CO2-e per tonne of clothing for Scenario 1; and
- 1.5 tonnes of CO2-e per tonne of clothing for Scenario 2.

For Scenario 1, GHG emissions of 1,353,753 tonnes of CO_2 -e are released per year with 75% generated during the production of new clothing (cotton and polyester garments) and 23% due to landfilling, see Figure 11. In Scenario 2, a total of 465,604 tonnes of CO_2 -e were emitted, 69% less than Scenario 1. The major source of reduced emissions for Scenario 2 is due to the displacement effect whereby the production of new clothing and associated emissions is reduced by 60%, compared to Scenario 1. Note that the Charitable Reuse and Recycling Sector does not produce new garments, hence the emissions generated in scenario two the reduction in impact over the clothing supply chain.



The landfill emissions for Scenario 2 is the result of the 17,228 tonnes of clothing received by the Charitable Reuse and Recycling Sector each year that is unfit for resale or recycling and is therefore disposed of to landfill.



Figure 11: Greenhouse gas emissions per year

3.5.2 Water consumption

Water consumption per tonne of clothing for both scenarios:

- 0.50 ML per tonne of clothing for Scenario 1; and
- 0.21 ML per tonne of clothing for Scenario 2.

Water consumption for retail shops and warehouses in Australia is the same for Scenario 1 and Scenario 2 and is based on the average quantity reported in the survey. The displacement effect, i.e. the reuse of clothing displaces 60% production of new clothing, resulted in Scenario 1 consuming 60% more water than Scenario 2, (refer **Error! Reference source not found.** The majority of water c onsumption across the supply chain is associated with fibre production.



Table 7 Water consumption

Phase	Scenario 1	Scenario 2
Clothing Production (ML/yr)	147,378	58,951
End of service (retail/warehouse) (ML/yr)	6,558	6,558

3.5.3 Energy consumption

Gas consumption per tonne of clothing is 1.5 MJ for scenario 1 and scenario 2.

Electricity consumption per tonne of clothing for both scenarios:

- 10 MWh per tonne of clothing for scenario 1; and
- 4 MW h per tonne of clothing for scenario 2.

476,100 MJ of gas consumption per year was calculated for both scenarios. This was based on the average gas consumption reported per warehouse by charities in the survey. The same consumption was assumed for warehouses selling new clothing, attributed in both scenarios.

Electricity consumption for retail shops and warehouses were calculated to be the same in both Scenarios 1 and 2. In Scenario 1, electricity consumption during the production of new clothing (cotton and polyester) was 3,167,918 MWh/yr compared to 1,291,029 MWh/yr in Scenario 2, a difference of 59%, presented in Figure 12.

Figure 12: Energy consumption per year





3.5.4 Diversion from landfill

Scenario 2 results in 293,088 tonnes of clothing diverted from landfill²³ compared to zero tonnes in Scenario 1.

Charitable enterprises work to ensure that items donated through their stores are not sent to landfill. In part this is driven by a cost imperative and in part by their mission to be responsible to the community. In the case of clothing items, the process is as follows:

 Clothing that can be re-sold in Australia, based on each enterprise's understanding of the Australian market (considering fashion, brands and utility, etc.) is sorted and shipped to charity stores. This stock is rotated and standard retail practices are applied to increase the likelihood of sales.

A few enterprises repair garments where they are of higher value or vintage stock. Some enterprises have 'menders' at every store who are happy to repair, whilst some provide clothing to disability employment services to repair and restore.

- 2. Clothing that is good quality but unlikely to sell in the Australian market is baled and sold to the export market.
- 3. Clothing that is low quality, for instance in need of serious repair, but clean, is sold for textile repurposing. Predominantly this is destined for rag production, but other textiles are shredded. A very small amount is used in energy recovery.
- 4. The remainder, usually clothing that has been ruined with oil or paint, is sent to landfill.

In addition to the results for clothing diverted from landfill, the survey found that enterprises collect, reuse and recycle a variety of products, see Table 8.

Product	Number of enterprises	Total tonnes per annum
E-waste	16	21,278
Fluorescent tubes	7	4
Whitegoods	15	17,260
Timber/green waste	8	230

Table 8: Other items collected for reuse and recycling

Other products that were recovered include scrap metal, cars, and beverage containers through the NSW Container deposit scheme.

3.6 **Prosperity**

This study does not comprise a full financial analysis of the operating costs of landfills versus charity shops. Revenue was compared to demonstrate the difference between Scenario 1 and Scenario 2 to ensure the analysis uesd the most reliable data available.

For Scenario 1, disposal of clothing to landfill, \$120 of value was added to the economy for every tonne of clothing. This revenue calculation was based on a weighted average landfill gate fee.

²³ Calculated as: clothing received by charity shops (310,316t) minus clothing to landfill by charity shops (17,228t).



For Scenario 2, charitable reuse and recycling of clothing, \$1,700 of value was added to the economy for every tonne of clothing received. The value calculation was based on reported clothing sales via the survey.

Through the sale of donated products such as clothing, furniture and bric-a-brac, a typical charity shop generates \$359,144 in revenue per year. Despite clothing making up only 31% of donated products, the sale of clothing generates 55% (\$197,132) of a typical charity shop's annual revenue. An annual cost of \$7,243 is incurred by a typical charity shop for disposal of clothing to landfill.

3.6.1 Support to the community

Charities provide support to the community, although the exact provision of this support will be different across different enterprises. Retail outlets for charities are often put in place to provide revenue to fund its community programs. The findings in this section should be considered within the broader context of the mission and programs of each charity.

Survey respondents indicated that their enterprise delivered services in a variety of areas, presented in Table 9.

Type of service	Number of enterprises providing this service
Programs relating to the environment	5
Programs for the homeless	18
Programs for children and families	16
Disability support services	4 ²⁴
Aged care services	3
Mental health services	10
Emergency/crisis relief	18
Suicide prevention and counselling	8
Education services	10
Support of prisoners	7
Programs for refugees or migrants	11
Programs for Pets or animals	2

Table 9: Community programs provided by survey respondents

The following quotes are samples of responses to the survey which, while not quantifiable, provide a snapshot of the importance of these enterprises to their communities.

²⁴ This was not asked directly. Four enterprises self-reported this sort of program, so the number may be higher. This is likely considering the results of employment statistics in section 4.2.1



"Our area has many low income households so we are an affordable location for quality second hand clothing at lower prices to the nationally operated chains. As a local organisation we support other organisations and provide other social programs other than the Charity shop."

"We support The Salvation Army Mission (Social Welfare Programs), welfare voucher and in-store gifting discretion. The stores are a safe place for customers (and clients) to start a conversation with a Salvation Army representative. The store is a community Hub and connection point for members of the public (sometimes a haven for those who are lonely and are seeking companionship). Confidence and Skills boost for new workers, a place to develop for those who may have been overlooked."

"We provide retail outlets in remote communities. A van from Alice Springs store accesses remote indigenous communities within 500 km of Alice Springs."

3.6.2 Emergency Response

The survey found 18 enterprises, representing 90% of the Charitable Reuse and Recycling Sector, provided direct relief following emergency events. Examples from respondents included clothing and goods provided in the wake of the NSW bushfires and provision of clothing and mattresses when the Grootye Island community was evacuated for a cyclone.

Respondents were able to point to specific examples, but in general the sector pointed to their mission to provide support to the community, emphasising their support for other arms of their enterprises that co-ordinate this activity, e.g. the Red Cross.

"Red Cross will launch an official appeal, the primary objective is to raise funds for people/communities impacted by the disaster. We don't have the capability of logistics/giving product away. We work closely with the community in their recovery."

Enterprises were unable to quantify the costs of providing relief from their retail arms during disasters, with most indicating this was absorbed into ongoing running costs.



Appendix A Consultation

Figure 13: Charitable Reuse and Recycling Sector Enterprises consulted

Consultation process	Enterprises consulted
Interview	 Salvation Army Endeavour Foundation Vinnies, NSW Lifeline, QLD Save the Children
Survey	 Alinea, WA and VIC Anglicare, WA Anuha, QLD City Mission, Launceston East Kimberley, WA Endeavour Foundation, QLD Good Sammy, WA Lifeline, Darling Downs Lifeline, QLD Lifeline, Newcastle/Hunter/Northern Rivers/SW Vic/Geelong Living Waters, NT Red Cross (Aus) Salvos (Aus) Save the Children (Aus) Uninies, NT Vinnies, NSW Vinnies, Far North QLD Vinnies, Rockingham QLD Vinnies, Rockingham QLD Vinnies, Townsville QLD Vinnies, Townsville QLD Vinnies, Watern QLD Vinnies, Western QLD Vinnies, Watern QLD

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