



## The Charitable Reuse and Recycling Sector's Commitment to Circularity



## The Inquiry into Australia's Waste Management and Recycling Industries

# Introduction

The National Association of Charitable Recycling Organisations (NACRO) commends the Government on launching its inquiry into Australia's Waste Management and Recycling Industries.

In particular, its focus on innovative solutions to ensure Australia responds to global recycling market changes and identifies ways to effectively reduce waste, and accelerate reuse, repair and recycling while creating new jobs, growth and social inclusion.

NACRO is committed to supporting and partnering with the Government in accelerating innovative solutions, with specific emphasis on our area of influence and authority:

- NACRO represents the entire charitable reuse and recycling sector in Australia, including every single influential charitable recycling brand including The Salvation Army, St Vincent de Paul Society, Australian Red Cross, Save the Children, Lifeline, Anglicare, RSPCA, Uniting, Good Sammy Enterprises, Red Nose, Uniting, Brotherhood of St Laurence, Family Life, Sacred Heart Mission, Ted Noffs, Helping Hands, Outlook Victoria, Endeavour Foundation, Diabetes, Epilepsy Foundation, Alinea, Link Vision and dozens more.
- Charitable reuse and recycling organisations have been the pioneers of the Circular Economy for 140 years, since the first Australian op shop launched in 1880 (by The Salvation Army), under the then progressive name of a 'recycling depot'.
- Since then, 285 million products a year are given a second life through reuse in op shops through 40 million consumer transactions to underpin Australia's second-hand economy.
- 3,000 charitable op shops and reuse enterprises with a 10,000 strong charity donation bin network, already also divert more than 622,000 tonnes of waste from landfill each year through reuse, recycling and resource recovery.
- To become truly zero waste, the 80,000 tonnes of unusable donations dumped in charities also needs to be diverted, including material flows like clothing textiles (16%), kitchenware (16%), furniture (15%), homewares (12%), toys (11%), electricals (6%) and other streams.
- In addition to already upholding Circular Economy principals, these charitable recyclers, social enterprises and community reuse organisations are active innovators, entrepreneurs and participants in waste diversion, resource maximisation, reuse and recycling acceleration.
- Together, the charitable reuse and recycling sector also generates \$550 million in revenue for charitable mission and social welfare programs – with the proceeds going directly to the most disadvantaged people and communities in Australia. From homelessness to meals for those in need to crisis support to mental health to migrant assistance to almost every spectrum of illness and disability, right down to protecting the welfare of our pets – the charitable work and mission of this sector underpins essential Government programs.
- In addition, the network of shops and reuse centres provides an unrivalled opportunity for regional economic development and job creation, along with a long-term solution to clothing textiles, by acting as collection, recycling and repurposing centres.
- The charitable reuse and recycling sector operates at the very top of the waste hierarchy, has the strongest Circular Economy credentials, and gives the Government arguably the greatest impact for Australia – with environmental, social and economic benefits.
- And, as the sector is already collaborating with industry and academia on new solutions, its is very easy, and very cost-efficient to scale for the Government.

NACRO is delighted to speak on behalf of this sector, which prides itself on collective impact, to support the Government with the following specific feedback in respect of the Inquiry.

# NACRO's Key Recommendations

NACRO recommends the following four initiatives to the Government in respect of the Inquiry on Innovative Solutions in Australia's Waste and Recycling Industries.

All four recommendations are designed to ensure that Government interventions are prioritised at the very top of the waste hierarchy, for maximum circularity, effectiveness and cost-efficiency:

## NACRO's Key Recommendations for the Government

- 1. To leverage the charitable recycling sector as a critical enabler of the Circular Economy and of reuse.**
- 2. To initiate a National Textiles Reuse Policy, as a multi sector collaboration to ensure reuse is prioritised in the emerging Circular Economy as it delivers higher economic returns than recycling.**
- 3. To conduct national research on material flows for textiles and other household goods, in order to develop an agreed understanding of the current challenges, and ensure opportunities are pursued at the highest levels of the waste hierarchy.**
- 4. To encourage the development of recycling technology infrastructure to add value to textiles that cannot be reused or repurposed.**

NACRO also encourages the Government to engage and consult the charitable reuse and recycling sector, through its one peak body NACRO and to invite us back to the table for further discussions.

# The Circular Economy – Charitable Reuse

The smartest innovative solutions are located at the very top of the waste hierarchy, are inherently cost-effective in delivering measurable outcomes, and provide the Government with the best triple bottom line return on investment – maximum environmental outcomes, the biggest economic and social drivers including job creation and regional development, as well as the greatest cost savings.



Compared with other developed countries Australia generates more waste per capita (double that of Norway and the UK). The long-term solution is to transition to a Circular Economy in which products and materials are retained in use for longer and move through successive cycles of use, reuse and recycling, resulting in reduced use of virgin resources and less waste (Worrell et al. 2016).

Increasing the use life of products and materials is preferable to destructive forms of materials recycling that produce lower grade feedstock for new manufacturing. However, Circular Economy initiatives have so far focused on incentivising end of life materials recycling.

Other strategies, like product design for longevity and extending product lifespans through repair and reuse, are only beginning to receive attention (European Commission 2015).

In Australia, the majority of durable products and materials used by households and businesses are disposed of after their first use-life, regardless of their potential for reuse. As governments across Australia are now starting to develop Circular Economy policy, understanding the benefits of reuse and how best to support it has become critical.

There is a massive opportunity for the Government to scale and leverage the groundswell of charitable reuse and recycling organisations already operating within Circular Economy principals. These organisations sit at the very top of the waste hierarchy, fully committed to avoidance, reuse, repair and recycling, and are the purest early adopters.

Reuse sits higher in the waste hierarchy than recycling, and the charitable sector plays a critical role in driving reuse in Australia. 285 million products are given a second life through charitable op shops and reuse enterprises, diverting over 622,000 tonnes a year from landfill, and building a growing market of environmentally conscious consumers.

*Reuse before Recycling* is the smartest strategy as it extends product lives at no cost, before an investment is required to recycle at the end of a product's life. For most products, extending the product lifespan is the most efficient use of materials. Only then – after reuse – does it make economic and environmental sense to invest in breaking down fibres to recycle.

- By providing adequate support for the cost-effective solutions that already exist, the Government can accelerate measurable results both fast and efficiently, to scale the groundswell of this community-wide charitable movement for reuse, repair and recycling.
- Reuse – The 3,000 charitable op shops and reuse enterprises nationally are perfectly placed to drive regional economic development. This unrivalled network of sites reaches deep into regional and remote areas of Australia, as well as metropolitan locations and are already making goods available for recirculation while also generating funds to support the community and employing people, including those with disabilities.
- Reuse – The charitable reuse and recycling sector has the fullest social licence to operate because of its social and environmental impacts, while also delivering the proceeds of \$550 million in revenue to support essential Government services for the most disadvantaged communities in Australia.
- Repair and Recycling – Supporting these organisations do more with specific grants to encourage repair, repurposing and recycling will directly increase resource recovery rates and drive regional economic development as well as new employment opportunities. The perennial difficulty for charities to invest exclusively (to do even more) is that they would have to divert core funds from their mission. Investing more in recycling often equates to how many fewer meals they can provide for those in need, or a reduction in mental health counselling sessions for people in crisis – gruelling decisions for any charity board. If the Government can spark grants in each location, it will ignite charitable recyclers to co-fund multiple social enterprises focused on resource recovery.
- Role of Charities – The work of charities assists tens of thousands of people in aged care services, education programs, emergency/crisis relief, home visits, hospital and health services, hostel accommodation, mental health services, suicide prevention counselling, medical research, prison visits and migrant/refugee assistance. These services support the work of many Government departments, and charities have a symbiotic relationship with the Government.
- Impact – The triple bottom line impact of the charitable reuse and recycling sector is perhaps unmatched by any other sector in terms of the social, environmental and economic impacts already delivered on a dollar for dollar basis. Without the support of the charitable sector, Governments would need to budget hundreds of millions of additional dollars nationally to support the essential services underpinned by charitable organisations.
- Job Creation – More specifically in terms of recycling impact, a NSW study showed that charitable recycling enterprises created nearly 200 full time equivalent jobs for every 10,000 tonnes of material reused, compared with the commercial recycling industry's 9.2 jobs per 10,000 tonnes. And just 2.8 full time jobs in landfill.
- Charitable Reuse and Recycling sector – This sector needs to be a priority focus for the Government because of its importance and impact. It is also a sector that does not need a huge investment to scale its impact, because it is already entrenched in Circular Economy

principles, already has a huge network of sites to be leveraged, and already engages a wide spectrum of the community. It just needs to be scaled with appropriate support and government investment.

- Investment – The reuse sector has typically not received much Government focus or support historically, but the development of a Circular Economy now necessitates that this becomes a priority – because reuse sits at the top of the waste hierarchy.
- The Second Hand Economy – Charitable op shops already extend the life of 285 million products a year. With a move to the Circular Economy, there is an opportunity for the Government to help drive further demand for the second-hand economy. With appropriate support and policy settings in place, this figure could rise to 500 million products a year reused, instead of being landfilled. Doubling the second-hand economy will act as a massive catalyst towards a Circular Economy.

## Government Definitions of Resources versus Waste

Clear definitions of both waste and resource streams will assist the Government better identify opportunities, and to encourage appropriate innovation:

- Unthinking positions that automatically define all streams as ‘waste’, and ‘recycling’ as the first option, are erroneous.
- Products donated to charities are correctly defined as ‘resources’ intended for ‘reuse’, and need to be valued as such.
- An item of waste is often described as something which has been discarded. This does not apply to bone fide charitable donations, which are, in essence ‘gifts’ to be reused by others.
- Charitable donations cannot be defined as waste streams destined for recycling – until their maximum extendable lifespans have first been achieved through reuse and repair.

This one shift in perspective, in treating charitable donations as resources will have a massive flow on effect in driving circularity in Australia, and enable the Government to maximise the effectiveness of all its interventions, by putting reuse and repair first, and recycling second.

The charitable reuse and recycling sector is the Government’s optimum partner, because it plays a critical role in the second hand economy, in landfill reduction, and in the social, environmental and economic wellbeing of Australia.

# NACRO's Recommendations

NACRO recommends the following four initiatives to the Government, all of which are designed to ensure that interventions are prioritised as the very top of the waste hierarchy, for maximum circularity, effectiveness and cost-efficiency:

- 1. To leverage the charitable recycling sector as a critical enabler of the Circular Economy and of reuse**
- 2. To initiate a National Textiles Reuse Policy, as a multi sector collaboration to ensure reuse is prioritised in the emerging Circular Economy as it delivers higher economic returns than recycling.**
- 3. To conduct national research on material flows for textiles and other household goods, in order to develop an agreed understanding of the current challenges, and ensure opportunities are pursued at the highest levels of the waste hierarchy**
- 4. To encourage the development of recycling technology infrastructure to add value to textiles that cannot be reused or repurposed**

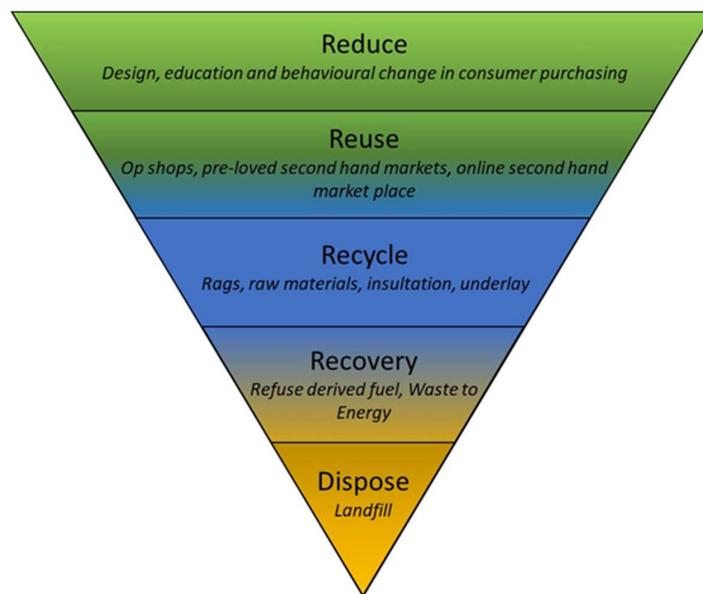
NACRO also encourages the Government to engage and consult the charitable reuse and recycling sector, through its one peak body NACRO and to invite us back to the table for further discussions.

# Textile Solutions

Clothing textiles represent by far the biggest product segment, conservatively generating \$263 million a year in revenue to charitable op shops, with the proceeds used to fund social welfare programs for the benefit of the most disadvantaged people and communities in Australia.

Currently, the charitable reuse and recycling sector already maximises the resource recovery from the donation of all clothing textiles through reuse and sale in op shops, distribution to those in need, exporting non-wearable excess as overseas aid and product sales to third world countries with lower purchasing power, as well as ragging, repurposing and shredding.

In terms of clothing textiles, very little, in terms of percentage, is lost as waste to landfill – once the donated textile resource enters the charitable reuse and recycling sector system. Some NACRO members even report up to 90% resource recovery rates in clothing textiles.



The vast majority of textile waste to landfill is generated outside of the charitable sector system – by consumers and businesses that erroneously send it straight to landfill.

The National Waste Report 2017-18 reported that approximately 776,000 tonnes of mixed textile waste was generated in Australia in 2016-17. Of this volume, 679,000 tonnes were disposed to landfill, representing a resource recovery rate of just 12%, which is a tiny percentage of what the charitable reuse and recycling sector already delivers.

Only 88,000 tonnes of textiles were reused – yet if the bulk of landfilled textiles could be diverted into the charitable sector system, recovery rates would immediately double, triple and quadruple.

Other estimates of the total tonnage of clothing to landfill include Moving the Needle’s data of 311,000 tonnes annually. According to the ABS, Australians (including the fashion industry) disposed of 487,000 tonnes of clothing textiles in 2016-17, with 406,000 tonnes going to landfill – which works out to a 16% resource recovery rate. (Similar to the National Waste Report’s percentage).

Whichever way you look at it (and the need for accurate data aside), two things are undeniable:

- The quantum of textiles to landfill is huge, and resource recovery rates are low (12-16%).
- The charitable reuse and recycling sector is by far the best performer in terms of high resource recovery rates (up to 90%).

With 3,000 charitable op shops and a national collection network of 10,000 charity bins, the sector presents the Government with a massive scalable opportunity to:

- Extend the life cycle of clothing textiles through reuse in charitable op shops and the second hand economy.
- Divert clothing textile waste from landfill by encouraging donations into the charitable sector system through the national collection network of stores and charity bins.
- Collect a critical mass of raw material suitable for recycling.
- Leverage the existing sorting and logistics capabilities of the sector.

## 1). National Textiles Reuse Policy

NACRO recommends that the Government initiate a National Textiles Reuse Policy, designed as a multi sector collaboration not restricted to clothing or charities – but including all stakeholders including manufacturers, retailers, exporters and logistics providers.

A National Textiles Reuse Policy will serve as a mechanism to ensure reuse is prioritised in the emerging Circular Economy in Australia over defaulting to recycling, in order to maximise the resource recovery in textiles, reduce waste to landfill, extend the product life cycles and encourage smarter design for end of life solutions and sustainability.

With the fashion industry beginning to embrace sustainable solutions, and consumers beginning to demand brands and retailers consider environmental impacts, the time is now for the Government to bring all stakeholders together in this critical multi sector collaboration.

## 2). Clothing Textiles – Charitable Sector Vision

Clothing textiles are a valuable resource in Australia's economy, whether they are new – or about to be reused. In fact, a pre-loved item made from quality fibres and donated to a charity store for reuse may well be much more of a resource than a 'new' poorly made, 'fast fashion' item designed for limited use. Donated for reuse, clothing textiles can be reused many times until the end of life, when its quality fibres make it more suitable and economical for recycling.

NACRO has a vision for a Circular Textiles Economy, and it begins with the overarching perspective that clothing textiles donated to charities are a resource, not a waste.

The only time clothing textiles should be deemed as waste is:

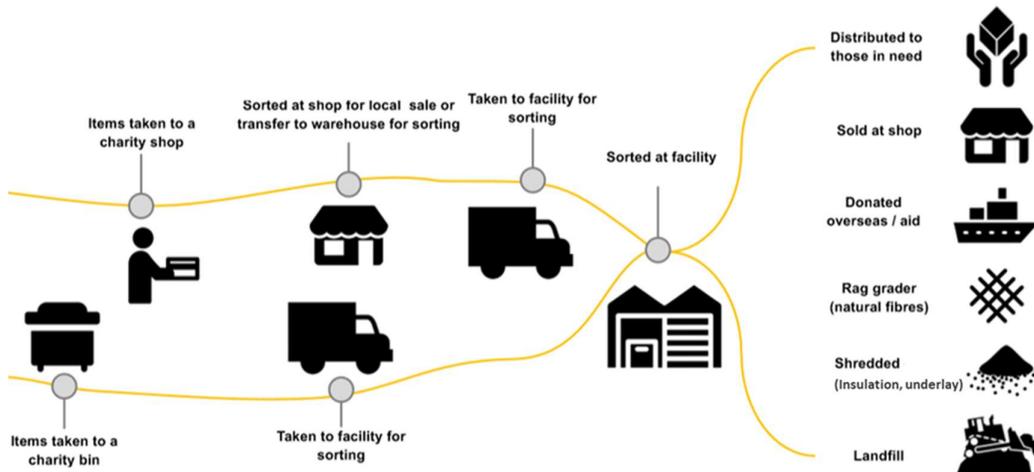
- Charitable Sector – after they have been reused in a second or third life, and become unfit for purpose. Or if the textile fibres used in manufacture are unable to be recycled.
- Consumers & Businesses – when quality reusable textiles are erroneously placed in the kerbside collection system and transported to landfill for disposal.
- Unrecyclable Textiles – when textiles manufactured from poor quality composites designed for fast disposal with a short life cycle are thrown away as landfill.

NACRO’s solution focuses on encouraging the diversion of quality reusable textiles from consumers and business to the charitable reuse and recycling sector, along with potential opportunities to further improve resource recovery and landfill diversion by charitable reuse and recycling.

Using the National Waste Report data, this submission provides a pathway to:

- Increase the national textile resource recovery rate from 12% to at least 50%.
- Reducing textile waste to landfill from to 697,000 tonnes to 388,000 tonnes.

The charitable reuse and recycling sector employs five strategies to achieve its high resource recovery rates for clothing textiles: distributing to those in need, selling for reuse in op shops, exporting as overseas aid and development, ragging of natural fibres, shredding for insulation and underlay – before any textiles are even considered to be sent to landfill.



The benefits of all of these strategies are well understood, perhaps with the exception of the exporting of clothing for reuse.

### 3). Exporting of Clothing for Reuse

These are donated items intended for reuse representing clothing textiles as a valuable resource. The only difference between exported items, and the items sold in op shops, is that they are of a slightly lesser grade without a viable reuse/resale market in Australia – but perfectly ideal and in high demand for developing countries overseas with consumers of limited purchasing power. In addition to serving a vital need for overseas consumers, the export trade generates potentially millions of dollars in revenue for Australian charities, that goes toward social welfare programs for the most disadvantaged people and communities at home.

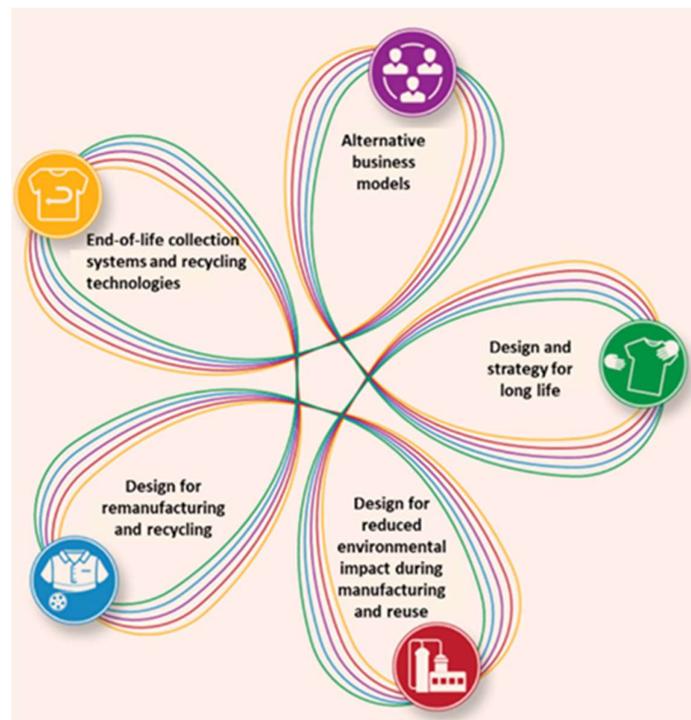
The clothing textile export trade is not a waste resource. The clothing has not been discarded as waste, it has been gifted for reuse as a resource. The charitable organisations and commercial suppliers operating in this trade are not paid to collect the items, and have no incentives to discard them. This resource business model makes it essential to find reuse markets and generate revenue through sales of the resource – it is a valuable commodity.

Protecting the export trade in clothing textiles needs to be an important priority for the Government. Should the export of clothing textiles be undermined by misrepresentations, the negative consequences on the Australian environment, on Australian charities and therefore on those in need in Australia would be serious. Clothing textile exports serve Australia well.

### 4). Management of Clothing Textiles

While the management of clothing textiles can be impacted at five points in the lifecycle (below), NACRO member operations impact the ‘end-of-life collection systems and recycling technologies’:

- Circular Economy – the re-use, remarketing and upcycling of second hand clothes.
- Closing the Loop – recovery of materials by recycling, and recycling innovations.



## 5). End-of-life Collection Systems and Recycling Technologies

Reuse (both domestic and overseas markets) is the most economical and environmentally conscious option for clothing textiles. The textile recycling sector is currently underdeveloped in Australia.

There is opportunity to reduce textile waste to landfill through the following two pathways:

1. Redirect clothing textile donations from consumers, brands and retailers to charities to the charitable reuse and recycling sector's high resource recovery rates, taking advantage of the existing network of charity textile collection, storing, logistics and retail operations.
2. Investigate and develop commercially viable textile recycling in Australia that can handle textiles other than through reuse, and finding new end markets such as insulation, underlay, building products and repurposing into new textiles.

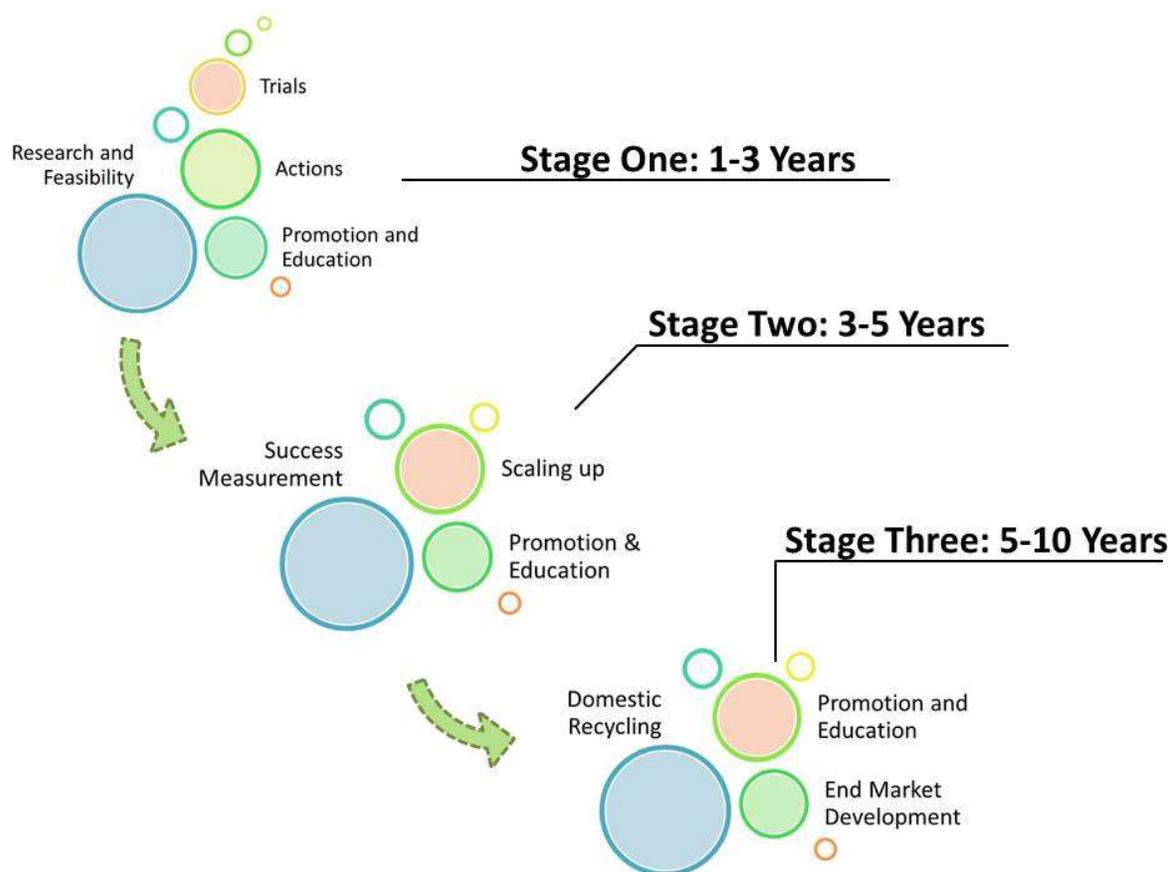
The challenges facing NACRO and the charitable reuse and recycling sector, include:

- Limited funding.
- Lack of reliable data including generated volumes.
- Disparate legislation between States and Territories and support for reuse activities.
- Identification of collaborators/partnerships to support upscaling collection and sorting infrastructure.
- Identification of appropriate end markets.
- Investment in diversion of clothing is currently voluntary stewardship approach without support from national regulation.
- Illegal dumping at charities.

# Clothing Textiles – Roadmap to Solutions

As a precursor to the Government’s National Textile Reuse Policy, NACRO is pleased to offer the following innovative solutions as a roadmap to clothing textiles, framed in three stages:

- **Stage One** – 3 Years (Research, Feasibility, Initial Trials and Actions)
- **Stage Two** – 5 Years (Successful Trials and Scaling Up)
- **Stage Three** – 10 Years (Technology and End Markets Developed)



## Stage One – 3 Years (Research, Feasibility, Initial Trials and Actions)

### Encourage Consumers and Businesses to Donate Excess Clothing Textiles to Charity

- Incentivise partnerships with brands and retailers to donate excess stock.
- Implement an education program to support diversion of clothing from landfill, and channel these resources into the charitable reuse and recycling sector.
- Educate councils on the benefits of maintaining charitable collection bin networks.
- Develop new trials for an expanded network of charity collection points in public spaces and high-density housing for clothing textiles. These trials would leverage the existing collection network, logistics and storing capacity of both NACRO members and the private sector.
- NACRO to commission independent research on the environmental, social and economic impacts of donating clothing textiles to charity to support this.

### Online Innovation in Clothing Textile Collections

- Identify partnerships with industry, charities and brands.
- Explore online shopping solutions for return shipments of excess clothing.
- Explore opportunities to leverage corporate social responsibility and sustainability for retail brands through charitable sector collaborations.

### Maintain Clothing Export Arrangements

- Protect and develop the existing export trade in clothing textiles, as an important contributor to Australian charities, overseas consumers, and as part of a Circular Economy solution in diverting (potential) waste from Australian landfill.

### Development of Australian Textile Recycling Technologies

- Develop new technologies for onshore textile recycling into quality products.

### Improve Data and Reporting

- Conduct research on textile material flows, to improve reporting and tracking of clothing textile usage covering generation, reuse, recycling and disposal, including understanding domestic and international markets.

### Harmonise Regulatory Frameworks

- Review policy and legislation for each State and Territory to understand regulatory barriers.

### **Integrate Stakeholders under the National Textiles Reuse Policy**

- Engage all stakeholders, including brands and retailers on discussions on mutual opportunities such as take-back schemes and/or product stewardship initiatives.

## **Stage Two – 5 Years (Successful Trials and Scaling Up)**

### **Expanded Collection Networks**

- Following the education and incentives for consumers and businesses to donate excess clothing textiles to charity, expand the charitable collection network trials, and rollout a national collection network scheme.

### **Development of Onshore Recycling Technologies and End Markets**

- Develop and upscale new technologies for textile recycling into quality products.

### **Promotion and Education**

- Continued implement of education programs to support diversion of clothing from landfill.

### **Scale and Develop Collaborative Initiatives**

- Develop mutual take-back schemes and/or product stewardship initiatives if voluntary mechanisms are insufficient.

## **Stage Three – 10 Years (Technology and End Markets Developed)**

### **Commercialisation of Domestic Recycling Infrastructure**

- Where economically and environmentally feasible, a domestic market for recycled textiles should be implemented.
- Scaling of all charitable reuse and recycling organisations to supply textile raw materials, sorting and logistics for domestic recycling.
- Scaling of commercial sector involvement, with profitable textile recycling operations.

### **Textile Circular Economy Solutions**

- Circularity of textile solutions to be measured as part of the global Circular Economy, not just Australia alone, allowing for global partnerships where beneficial.

### **Promotion and Education**

- Continued implement of education programs to support diversion of clothing from landfill.

# Government Support

To support the recovery of clothing textiles the following is needed from Government:

- Set specific long term targets for recovery of textiles from landfill.
  - NACRO recommends a 50% resource recovery rate target by 2030 representing 388,000 tonnes recovered per year by 2030, based on current 2020 data.
- Investment in recycling and technology infrastructure.
  - Grant funding to support the roll out of recycling technology, sorting and collections.
  - Support for research and development of domestic textile recycling initiatives.
  - Support of procurement of recycled content, including textiles.
- Leadership in Government to allow for consistency between states and territories to view textiles as a resource not as waste.

NACRO will continue to foster the expansion of textile recycling in Australia by:

- Promoting charitable reuse and recycling through stores and bin collection systems.
- Continuing to work with commercial, council and academic partners on furthering the development of textile recycling solutions.
- Entering into commercial arrangements with textile exporters for the reuse, recovery and recycling of textiles.
- Working with Government to develop the correct market and policy signals to advantage reuse over recycling, and then to advantage recycling over landfill.
- Working with Government to develop specific targets for the recovery of textiles.
- Commissioning new independent research that clearly quantifies and demonstrates the environmental, social and economic benefits of the charitable reuse and recycling sector to provide an even more compelling business case for investment and support.

# NACRO's Textile Recommendations

If NACRO's proposed roadmap (above) is implemented by Government and the charitable reuse and recycling sector, then textile recovery rates should be able to be increased to at least 50% or 388,000 tonnes per year by 2030.

Based on a \$150 per tonne landfill cost, this would result in a landfill saving of at least \$58 million per year.

The roadmap can also be incorporated into a National Textile Reuse Policy, with the engagement of all stakeholders including fashion brands, clothing retailers, commercial exporters and recyclers, State Governments and local councils – for even greater savings and environmental impacts.

## NACRO's two key recommendations in respect of textiles are:

- 1. To initiate a National Textiles Reuse Policy, as a multi sector collaboration to ensure reuse is prioritised in the emerging Circular Economy as it delivers higher economic returns than recycling.**
- 2. To encourage the development of recycling technology infrastructure to add value to textiles that cannot be reused or repurposed.**

NACRO also encourages the Government to engage and consult the charitable reuse and recycling sector, through its one peak body NACRO and to invite us back to the table for further discussions.

# Global Textile Innovation Links

Some examples of global innovation are attached, for information and inspiration:

## International Textile Reuse and Recycling Policy/Strategy

- [A Nordic strategy for collection, sorting, reuse and recycling of textiles https://norden.diva-portal.org/smash/get/diva2:788300/FULLTEXT01.pdf](https://norden.diva-portal.org/smash/get/diva2:788300/FULLTEXT01.pdf)

## Technology for Textile Fibres to be Recycled into New Raw Materials

- The Hong Kong Research Institute for Textiles – <https://www.garment2garment.com/>
- UPSET – capable of transforming 100% cotton waste into 100% recycled fibres without adding resource-intensive virgin cotton <http://www.enviu.org/work/upset-textiles/>
- Lenzing (Austria) – upcycling a substantial proportion of cotton scraps to produce new Lycocell fibres to make fabrics and garments - <https://www.tencel.com/refibra>, <https://www.lenzing.com/sustainability/production/fiber-production/>
- Worn Again Technologies – partnered with Sympatex Technologies / Dhana Inc. <https://www.ispo.com/en/trends/worn-again-technologies-announces-pioneer-members-programme>
- Dutch Circular Textile Valley – <https://www.dutchcirculartextile.org/>
- Re:newcell – <https://renewcell.com/>
- Lahti University of Applied Sciences – [https://yle.fi/uutiset/osasto/news/new\\_technology\\_to\\_advance\\_textiles\\_recycling\\_in\\_finland/10973359](https://yle.fi/uutiset/osasto/news/new_technology_to_advance_textiles_recycling_in_finland/10973359)
- Siptex (Sorting) – <http://boergroup-recyclingsolutions.com/projects/siptex-swedish-innovation-platform-for-textile-sorting/>
- Recovertext – <https://www.recovertext.com/>

## Technology for Textiles to be Recycled into New End Markets (not yet commercialised in Australia)

- Lacus Felt Acoustic Felt Manufacturers – <https://www.lacusfelt.com/>
- Texfelt / Jame Robinson Fibres – [https://www.jrfibres.co.uk/textile\\_recycle.php](https://www.jrfibres.co.uk/textile_recycle.php)
- UltraTouch™ Denim Insulation – <https://www.bondedlogic.com/ultratouch-denim-insulation/>

## Domestic Australian Textile Recycling

- UNSW NSW Circular Economy recycling textile/glass into tiles <https://www.nswcircular.org/>

# Conclusion

NACRO recommends the following four initiatives to the Government in respect of the Inquiry on Innovative Solutions in Australia's Waste and Recycling Industries.

All four recommendations are designed to ensure that Government interventions are prioritised at the very top of the waste hierarchy, for maximum circularity, effectiveness and cost-efficiency:

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**For further information, please contact**

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# Appendix – Research

## Charitable Reuse & Recycling Sector Research conducted for the Inquiry

In November and December 2019, NACRO conducted new research to provide the Inquiry into the Waste and Recycling Industries with insights into resource and waste streams, needs and opportunities in the charitable reuse sector.

The following highlights are presented representing the needs of NACRO members.

A copy of the full research survey and responses is available on request.

### Resource Streams

	Reuse	Recycling	Waste
Clothing	94%	50%	63%
Homewares	94%	31%	63%
Furniture	93%	43%	64%
Sporting Goods	93%	29%	57%
Toys	88%	13%	63%
Electrical	79%	50%	57%
Kitchen	77%	46%	62%
White Goods	70%	60%	60%
Mattresses	42%	42%	75%

*Survey question = What resource and/or waste streams do you deal with?*

The top resource streams, in terms of items donated to charities for reuse are: clothing, homewares, furniture, sporting goods, toys, electrical items, kitchenware, white goods and mattresses.

The table (above) shows the percentage of charitable reuse and recycling organisations that extend the lives of these products through reuse and recycling, as well as the percentage that have to deal with some of these products as waste – defined as either items illegally dumped on charities, or products received in such poor condition that they cannot otherwise be reused or recycled.

Illegal dumping and unusable donations remains a persistent problem, costing the charitable reuse and recycling sector over \$18 million a year on waste management costs. Despite the best efforts of the sector, with high resource recovery rates, some 80,000 tonnes of unusable donations and illegally dumped products have to be sent to landfill each year.

To end the problem of dumping at charities, NACRO has called on all State Governments to invest just \$10 for each tonne of waste that charities have to deal with, and for the Federal Government to match the funding, in a Policy Paper and 3-Point Plan launched in 2019.

Link to the Policy Paper <https://www.nacro.org.au/wp-content/uploads/2019/03/Policy-Position-Government-Investment.pdf>

## Most Problematic

Resource to Waste	Percent
Clothing	38%
Mattresses	25%
Furniture	19%
Other (please specify)	13%
Homewares	6%
Electrical	0%
Kitchen	0%
Sporting Goods	0%
Toys	0%
White Goods	0%

*Survey question = Which is your most problematic waste type?*

The most important resource stream is Clothing Textiles (Wearable Solutions for Reuse).

Similarly, the most problematic waste type is also Clothing Textiles (Excess Non-Wearables for Recycling). Because of its importance, NACRO is focusing on solutions for Clothing Textiles in this Inquiry.

## Federal Government Involvement

Innovative Solution	Essential	Important
Capital grants for recycling technology	87.5%	12.5%
Support charitable recycling	81.3%	18.8%
Educate consumers on donating	81.3%	12.5%
Help charities tackle illegal dumping	73.3%	20.0%
Capital grants for infrastructure	71.4%	28.6%
Encourage charitable reuse	68.8%	25.0%
Fund research on material flows	68.8%	31.3%
Design products for recycling	57.1%	21.4%
Promote the second hand economy	56.3%	43.8%
Expand product stewardship schemes	53.3%	33.3%
Provide charitable freight subsidies	46.7%	40.0%
Invest in waste to energy	26.7%	33.3%

*Survey question = How important is it for the Federal Government to drive the following opportunities?*

Charitable reuse and recycling organisations are clear on exactly what they need from the Federal Government to scale Circular Economy solutions, and drive reuse, repair and recycling in Australia. They are also actively working with partners directly on solutions, to cost-efficiently scale solutions.

The top seven innovation drivers required from the Government are:

1. Capital grants for recycling technology
2. Support charitable recycling
3. Educate consumers on responsible donating
4. Help charities tackle illegal dumping
5. Capital grants for infrastructure
6. Encourage charitable reuse
7. Fund research on material flows

## Barriers to Innovation

Barriers	Percent
Funding for infrastructure purchase	100.0%
Logistics	68.8%
Difficulty of waste material	56.3%
Business viability of recycling initiative	56.3%
Availability of market partners	50.0%
Business core competency	31.3%
Other (please specify)	12.5%

*Survey question = Which of these are barriers to innovation in recycling and resource recovery?*

The biggest single barrier to the charitable reuse and recycling sector generating even more impact is funding. Logistics, difficulties in waste materials, commercial business viability and availability of market partners were also cited as barriers.

The perennial difficulty for charities to invest more is that they would have to divert core funds from their mission, which often equates to how many fewer meals they can provide for those in need, or a reduction in mental health counselling session – gruelling decisions for any board. If the Government can invest in proven interventions, it will ignite the sector to co-fund initiatives.

## Importance of Opportunities

Inquiry's Five Focus Areas	Essential	Important
Removing impediments to innovation	67%	33%
Innovative recycling approaches	63%	38%
Opportunities presented by waste materials	43%	57%
Export opportunities	33%	53%
Energy production	13%	47%

*Survey question = How important are the following opportunities for the charitable reuse and recycling sector?*

The charitable reuse and recycling sector wants to see the impediments to innovation removed, which essentially boils down to funding through Government investment. Secondly, there is a need for innovative new recycling opportunities, and NACRO is collaborating with a wide range of both government and commercial operators to encourage this. Individual NACRO members are also actively assessing pilot schemes and developing opportunities, including substantial works by The Salvation Army (Salvos Stores) and the St Vincent de Paul Society (Vinnies)

## Federal Government Involvement - Clothing Textiles

Clothing Textiles Innovative Solutions	Essential	Important
Capital grants for textile recycling	81.3%	6.3%
Capital grants for textile sorting	62.5%	18.8%
Encourage consumers to donate clothing to charities	62.5%	18.8%
Encourage domestic textile re-manufacturing	62.5%	18.8%
Fund research on clothing use, reuse and recycling data	62.5%	31.3%
Encourage brands to donate excess new stock	56.3%	31.3%
Legislate to ban excess new clothing destruction	53.3%	26.7%
Support a textile take back scheme	53.3%	20.0%
Tackle the fast fashion crisis	50.0%	18.8%
Fund research on a clothing product stewardship scheme	37.5%	50.0%

*Survey question = In relation to clothing textiles, how important is it for the Federal Government to drive the following opportunities?*

NACRO members have suggested ten innovative considerations (above) in respect of scaling solutions for textiles, both within the charitable reuse and recycling sector, and beyond.

These include sector specific initiatives such as capital grants for textile recycling, to encouraging consumers to donate clothing to charities instead of landfill, tackling the fast fashion crisis and engaging brands and retailers with more sustainable business practices.