
GREEN INDUSTRIES SA
**Material pathways of
uniforms in state
government**



**Government
of South Australia**

Green Industries SA

Executive summary

In 2023, Green Industries SA (GISA) engaged Rawtec to investigate the material pathways of uniforms from South Australian state government organisations. The purpose of the project was to identify where uniform procurement and sustainability practices could be improved. This overview has been excerpted from the Rawtec report.

Representatives from 7 government departments provided their data by responding to a survey and engaging in follow-up interviews. Insights were gathered regarding:

- the procurement process for uniforms
- staff uniform allocations and reorder timelines
- the approach to ordering and distributing uniforms
- maintenance, repair and reuse systems
- how uniforms are managed at their end-of-life.

A workshop was held with representatives from participating agencies to discuss the findings. A range of opportunities and suggested next steps were formed based on the findings from the survey, interviews and workshop.

Participants at the workshop supported moving towards more circular textile procurement and management. The initiatives participants want to progress first include:

- forming a working group to allow for continued collaboration in the space of circular textiles
- developing a sustainable uniform procurement guide
- piloting textile recycling.

To advance this, in 2024, GISA began convening 'Fit For Purpose', an online network which is open to anyone working on progressing circular uniforms in South Australia, from state and local government to small business, academics to community groups, corporate workwear, sporting clubs, schools and more. As a result of this work, several state agencies have now implemented uniform recycling systems.

Background

Textile waste is growing at an incredible rate and its environmental impact is becoming a focus of consumers and governments. Australians send 200,000 tonnes of textiles to landfill each year and another 100,000 tonnes are exported overseas. Limiting the environmental and social impacts of textile waste requires finding ways to reduce consumption, encourage reuse and repair, and develop and use recycling technologies.

Project brief

This project focused on the lifecycle of uniforms within a sample of South Australian state government organisations to understand how the purchase, management and disposal of uniforms occurs, including a data collection survey and follow-up interviews with organisations. This information was then analysed and informed a workshop to discuss opportunities.

This report provides a summary of this process and insight into:

- the procurement process for uniforms
- staff uniform allocations and reorder timelines
- the approach to ordering and distributing uniforms
- maintenance, repair and reuse systems
- how uniforms are managed at their end-of-life
- the opportunities and suggested next steps.

Circular uniform opportunities

There are significant opportunities for SA government departments to transition to circular textile practices. These have been workshoped with participating departments.

The opportunities are grouped into 3 broad categories. They all have varying levels of complexity, require system change and have varied timelines. Some aspects like the end-of-life recycling are still emerging and options will only become available over time. Some opportunities may be possible for individual organisations to explore and implement. However, many will benefit from a collaborative approach and coordination.

Uniform procurement and management

These opportunities consider the procurement and management process of uniforms. They have enormous impacts on how uniforms are consumed. Targeting these items can have significant impacts through the supply chain and life cycle of uniforms.

Opportunities

1. Sustainable uniform procurement guide
2. Whole-of-life uniform management
3. Changing the uniform supply model
4. Review uniform allocations

Design and reuse

The environmental impact of any product is largely decided during the design process. Considering the design of uniforms at the outset can help reduce the environmental impact and help establish better systems to manage them.

Opportunities

5. Designing to reduce waste, and for reuse and recycling
6. Removable logos
7. Partnering with disability employment or prison labour

End-of-life

Managing uniforms at end-of-life is important. The scale of textile waste demands more responsible ways to manage this growing 'waste' stream.

Opportunities

8. Energy from waste
9. Textile recycling

Uniform procurement and management

1. Sustainable uniform procurement guide

Developing a sustainable uniform procurement guide will help procurement staff make more informed decisions.

There is no consistent approach for procuring uniforms across government. Procurement staff have varying levels of experience and skills in specifying and assessing the quality, performance and sustainability of uniforms.

The guide could include aspects such as:

- design requirements (Opportunity 5)
- minimum fabric standards (durability, colour fastness, repairability etc.)
- fabrics to avoid
- considering lifecycle costs
- weighting and assessing sustainability in evaluation
- supply models (Opportunity 3)
- opportunities to partner with other government organisations.

Benefits

- Providing better practice guidance for procurement staff
- Central resource that can be updated as changes in the market occur
- Creating greater consistency and accountability across government
- Highlighting and including good practices that are already happening

Barriers

- Regular updates required

Next steps

- Develop a procurement guide

2. Whole-of-life uniform management

Organisations have varying levels of oversight and control of uniforms once they are issued to staff. Implementing formal systems to oversee the entire life cycle of the uniform from purchase to end-of-life will help organisations to:

- understand their uniform consumption
- aggregate uniforms
- create a pathway to reuse or recycling as future opportunities are developed.

Taking greater responsibility for the life of uniforms could also create opportunities for:

- internalising responsibility for laundering items in specific circumstances (such as highly soiled or contaminated items) to help manage health and safety risks and avoid premature disposal of items
- creating a formal system for uniform repair to avoid disposing over minor defects
- increasing accountability in uniform ordering by requiring return of items in exchange for new items.

Benefits

- Achieving greater transparency in ordering, life of uniforms and end-of-life pathways
- Providing full understanding of costs
- Creating the platform to respond to future end-of-life opportunities
- Reducing disposal of uniforms when life could be extended

Barriers

- Significant system changes for some organisations
- Logistics of changing/creating the system
- Internalises the cost for end-of-life uniforms (may currently be an externalised cost, such as staff disposing of items at home)

Next steps

- Set up systems to track consumption of uniforms at an employee level
- Investigate option to internalise laundering and repair of uniforms, considering how uniforms may be tracked through this process (such as RFID)

3. Changing the uniform supply model

The current uniform supply model does not incentivise long-lasting, repair or reuse of uniforms. The aim for suppliers is to sell more items.

Organisations can consider and explore alternative supply models that encourage suppliers to develop circular business models. Some examples include:

- a comprehensive uniform management system where the supplier manages the laundering, repair, receipt and inspection for reuse, warehousing and re-issuing of reusable uniforms. This could involve having a pool of uniforms, rather than employees having items personally issued
- uniform rental instead of purchase to incentivise longer lasting items.

Exploring these models is something that can be completed through a market engagement process before, or as part of, a procurement process.

Benefits

- Increasing responsibility of the supplier to provide a high-quality product
- Incentivising suppliers to become more circular
- Leveraging the supplier's logistics networks

Barriers

- Appetite of suppliers to change business model
- Flexibility within organisations to change uniform supply model and logistics

Next steps

- Consider alternate models, including the switch to a uniform pool
- Prepare a market engagement strategy to understand the opportunities suppliers can offer

4. Review uniform allocations

Most organisations specify initial uniform allocations for staff and reorder timelines. However, this varies significantly between organisations.

A review of allocations and reorder timelines are recommended to confirm they:

- match staff needs
- are based on evidence, such as supplier data, where possible
- reflect the use of the item, for example jackets should last much longer than shirts.

Flexibility to respond to natural wear and tear or unforeseen circumstances will always need to be considered within the system.

A further opportunity is to conduct a longer-term study on uniform quality to gather an evidence base of an expected life span for items.

Benefits

- Avoiding the purchase of new uniforms that are not required
- Encouraging repair of uniforms
- Creating greater focus on the initial quality of uniforms
- Employees becoming more aware of their uniform consumption

Barriers

- Push- back from staff who are used to more regularly receiving new uniforms

Next steps

- Set up systems to track consumption of uniforms at an employee level
- Investigate lifespan of each garment and change reorder timelines to better reflect this

Alternatively, consider if reorder timelines are needed at all.

Design and reuse

5. Designing to reduce waste, and for reuse and recycling

Design choices can significantly impact the sustainability of uniforms.

Considering the impact of textile waste during the production process is important. Initiatives to reduce the amount of potential waste generated by a supplier can include:

- using standard fabric colours
- limiting colour variations
- avoiding custom colours.

A range of other design decisions can impact on the ability to repair, reuse and recycle uniforms, such as:

- choosing quality fabrics that last longer and can be repaired
- requiring suppliers to share any intellectual property that allows items to be repaired by a third party
- selecting fabrics and components that may be recyclable in current or future processes, such as polyester buttons instead of nylon
- keeping items generic where possible for example, undershirts aren't printed with specific logos or positions.
- limiting customisation across branches within a department to maximise opportunities for reuse.

Benefits

- Addressing sustainability at the start of the uniform process
- Encouraging repair and reuse
- Facilitating recycling when future options are available

Barriers

- Limited or no alternative options
- Knowledge of procurement staff and information availability from suppliers

Next steps

- Include design considerations in sustainable uniform procurement guide (opportunity 1)
- Develop and align uniform policies to consider sustainable design requirements

6. Removable logos

Uniforms with government organisation logos typically cannot be reused outside of the organisation for security and reputational reasons. Removing logos (de-labelling) would enable reuse of garments outside of the organisation.

Some technologies to reduce the manual component of de-labelling have been trialled overseas, however none have been widely adopted.

Manual methods are currently the best available options for de-labelling in South Australia. Manually removing logos can be time consuming and labour intensive, but if uniforms were designed with consideration to de-labelling (for example, logos stitched on as a patch rather than directly embroidering on garments, and heat press printing of the logo), manual methods would be more viable. The viability is further increased in conjunction with opportunity 7.

Benefits

- Enables reuse of uniforms outside the organisation
- Prolongs life of quality items that would otherwise be disposed of

Barriers

- Australian Tax Office requires logos on uniforms be 'permanently attached'
- Time and cost inputs to de-label uniforms

Next steps

- Consider de-labelling during design
- Monitor de-labelling technologies and processes used overseas

7. Partnering with disability employment or prison labour

Partnering with disability employment organisations or prison labour could help to extend the life of uniforms for reuse or manage the security requirements at end-of-life.

With reuse in mind, uniforms could be inspected and repaired (if needed) and put back into circulation for staff use or have the logos removed and donated.

Where items cannot be reused, the logos could be removed/destroyed, and the uniforms sent for textile recycling (opportunity 9) or energy recovery (opportunity 8).

Benefits

- Supporting local social employment
- Keeping uniforms in use where possible and reducing purchasing of new uniforms
- Formalises system of managing security requirements

Barriers

- Logistics of collection and reuse
- Changing staff behaviour to manage uniforms

Next steps

- Contact disability employment or prison labour services to understand if and how this could work

End-of-life

8. Energy from waste

Diverting non-reusable uniforms to energy from waste is an option until large-scale textile recycling facilities are available.

The Veolia ResourceCo alternative fuels facility in northern Adelaide turns dry waste into a fuel source that replaces natural gas in a local cement kiln. Departments could arrange either a dedicated uniforms collection or place uniforms into an existing 'dry waste' collection service, until a textile recycling option becomes available in SA (see opportunity 9).

Benefits

- Displacing use of fossil fuels
- Reducing waste to landfill (or losing the value of items that are currently incinerated)
- Increasing oversight and tracking of uniform disposal
- Managing security of uniforms (pre-treatment to remove logos may still be required, pending security requirements, see opportunity 7)

Barriers

- Changing staff behaviour to dispose of uniforms
- Implementing the system to manage uniform collections (multiple sites, centralised, collecting uniforms from regional areas, and so on)
- Cost for collections (may currently be an externalised cost)

Next steps

- Identify availability of dry waste services
- Identify preferred system for each organisation and work through logistics to implement

9. Textile recycling

Australian company BlockTexx has an existing facility in Queensland that uses a chemical recycling process to recycle polycotton textiles like uniforms. It is currently only a small facility but the collection and recycling uniforms from an SA government organisation could be trialled.

More on-shore textile recycling facilities will likely become available in the longer term. A conscious effort by the SA government in committing to recycle all eligible uniforms could help to attract investment in a local textile recycling facility.

Benefits

- Diverting textiles from landfill
- Recovering valuable resources to be remanufactured into new products

Barriers

- Availability of recycling facilities
- Suitability of uniforms for recycling (the uniform should be designed with recycling at end-of-life in mind)
- Logistics of collecting uniforms
- Commitment from government to purchase items that contain recycled content

Next steps

- Trial recycling of uniforms with BlockTexx
- Consider options to manage uniforms in a way to facilitate recycling when options become available
- Monitor for future textile recycling options

Workshop

A workshop was held on 25 September 2023 to discuss findings from the project. Participants at the workshop supported moving towards more circular textile procurement and management. The initiatives participants want to progress first include:

- forming a working group
- developing a sustainable uniform procurement guide (opportunity 1)
- piloting textile recycling (opportunity 9).

The 9 circular uniform opportunities presented in this report were discussed during the project workshop, including barriers to each opportunity and potential solutions. The outputs from this exercise have been filtered into the circular uniform opportunities section of the report.

At the end of the workshop participants were asked for their thoughts on where to from here, and what they needed. A high-level summary of responses is included below.

What should happen next?

- Sustainable uniform procurement guide
- Textile recycling pilot
- Form a working group
- Pilot alternative contract models
- Trial redesigning uniform with consideration to de-labelling/removable logos
- Review branding on uniforms, consider when it is required and when it is not
- Set up a uniform reuse service, issue old uniforms as spares
- Set up systems to track uniforms
- Investigate expanding collaborative procurement to more agencies
- Explore other fibres to be used, and fibre trace systems
- Summary of outcomes of this research to go to ministers
- Push private suppliers to offer circular services (such as repair and textile recycling) as part of their operations
- Encourage more strict instructions on sustainability for procurement panels

What do you need?

- A fabric performance standard/guideline
- Information and options to make more sustainable choices
- Information on textile recycling – updates, information, support on how to progress
- Information on uniform tracking technology
- A shift away from the negative perception of second-hand uniforms, and a greater understanding from staff on the importance of sustainability (including the cost-benefits)



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