

WELLINGTON

Zoo

NZ TEXTILE REUSE PROGRAMME

Uniform Reuse

Wellington Zoo is nestled in the green belt of Wellington, New Zealand. Now over 100 years old, it was the country's first zoo and has 13-hectare (32-acre) dedicated to over 100 species of fauna from across the globe. Wellington Zoo is a significant contributor to conservation efforts including breeding programs for endangered species, as well as spreading conservation and sustainability messages to the wider community.

Wellington Zoo Chief Executive, Karen Fifield, has been selected to lead the team to develop a sustainability framework for progressive zoos and aquariums throughout the world.

Wellington Zoo's sustainable journey started more than ten years ago and since then has achieved its carboNZero certification for the fifth year running, added a 100% electric vehicle to its fleet, installed 48 solar panels, transitioned to an ethical uniform supplier and an ethical textile disposal organisation, increased the eco-sourced and sustainable products in the Wellington Zoo Shop, and switched to a CarboNZero certified electricity retailer.

*“Reducing the Zoo’s carbon emissions and impact on the environment is important to our goal of saving animals in the wild. Sustainability is a journey, it never ends, and we’re proud to be leading the way in this area and showcasing our environmentally conscious practices. We hope by sharing our journey with the zoo and aquarium profession and other organisations, we will spark the conversation about what other people can do to reduce their impact on the planet.”*

Karen Fifield, Chief Executive, Wellington Zoo.

# THE CHALLENGE

New Zealand churns through about \$4 billion worth of clothing a year. Auckland Council estimate discarded textile and clothing waste at about 9% of landfill and is their fastest growing waste stream. Putting used clothes into clothing bins provides free stock to multi-million dollar businesses which on-sell the majority of this clothing to poor second-hand clothing traders on foreign shores. NZ exports \$14 million in used clothing a year to Papua New Guinea alone. The uncontrolled export of our waste clothing has decimated local textile industries resulting in significant social impacts through the closure of local industries, the loss of skilled jobs and produced negative environmental effects from the dumping of unwanted clothing. The issue is so significant that in 2016 a block of East African Governments proposed a ban on the importation of second-hand clothes.

Our clothing is also far from inert, recent studies revealing micro fibres from clothing is so prevalent they are now a common contaminant in our drinking water and food sources. Over 80% of the worlds drinking water is contaminated with microplastic fibres from clothing and other plastics.

While our domestic clothing consumption is eye watering, commercial textile consumption is estimated to be 40 times greater by volume. To protect brands corporate clothing is landfilled, the majority of corporate clothing is made from polyester, when assigned to landfill it does not break down and is still going to be there in 100-500 years-time, leaving a long legacy for generations to come.

Where our clothes end up is as important as where they come from.

# THE CHALLENGE

Independent research organisation the Ellen MacArthur Foundation warn the consequences of not addressing clothing waste is the problem could now could be “*potentially catastrophic*”. Demand for clothing is continuing to grow quickly, should growth continue as expected, total clothing sales would reach more than three times today’s amount – “*If the industry continues on its current path, by 2050, it could use more than 26% of the carbon budget associated with a 2°C pathway. Moving away from the current linear and wasteful textiles system is therefore crucial to keeping within reach the 2°C average global warming limit.*”

All uniforms become obsolete at some stage of their lives whether they are worn or not. A company’s decision to rebrand or revise their uniforms up until now has never really taken into consideration what happens to the old uniforms.

Organisations invest considerable amounts of money into their brands including branded garments, security and reputation management are key considerations. However most sustainability reporting omits reporting on the impacts of organisational clothing and textile consumption.

Wellington Zoo had recently changed their uniforms and uniform supplier and wanted to investigate alternatives to landfilling their decommissioned old uniforms.

# WHY THE FORMARY?

The Formary is an award winning Sustainable Textile Research and Development company and a global leader in textile fibre redesign. The Formary works with businesses and organisations worldwide, transforming textile and clothing waste into valued products.

The NZ Textile Reuse Programme developed from NZ Post requesting The Formary's assistance to develop a scalable system to manage and divert their end-of-life textiles from landfill. The Formary proposed taking a systems approach to the issue, inviting in a small group of likeminded corporates to form a collaboration to design and implement a scalable system to provide optimal end-of-life solutions for textile waste. This led to an initial collaboration of five of NZ's largest corporations – NZ Post, Air NZ, Fonterra, SKY CITY, and The Warehouse Group. With AlSCO NZ, Wellington City Council and Wellington Zoo subsequently joining. The programme was overseen by a Steering Group comprising one representative from each organisation. Taking a staged approach to developing the system for scaling reuse of garments that incorporates community needs, conversion to industrial inputs and the inclusion of new processing technologies to extract higher value from clothing resources.

According to the Ellen Mac Arthur Foundation *“Increasing the average number of times clothes are worn is the most direct lever to capture value and design out waste and pollution in the textiles system.”*

WRAP UK calculate that *“Extending the life of clothes by just nine extra months of active use would reduce carbon, water and waste footprints by around 20-30% each.”*

# THE SOLUTION

The Formary worked with Wellington Zoo to sort and record each decommissioned garment – fibre type, current state of the garment and reuse pathway.

Wellington Zoo's priorities for the decommissioned uniforms were:

- Diversion from landfill
- Support local communities
- Extract the greatest value from the garments

Garments were identified in the following categories:

1. Community reuse as garments
2. Reuse in second generation product
3. Return to supplier (faulty/not fit for purpose)
4. Waste

Unclean reuseable garments were sent to be professionally laundered.

Reuseable garments were sent to embroiderers to have logo covered/secured.

Garments were then dispatched to the following community groups in need of clothing:

Workerbee Oasis & Kaicycle, Common Unity, Kiwi Community Assist for dispatch to: Wellington Night Shelter, Taeaomanino Trust, The Free Store, Capital and Coast Health, and Te Waka Whaiora Trust.

Pathways for garments into second generation products were:

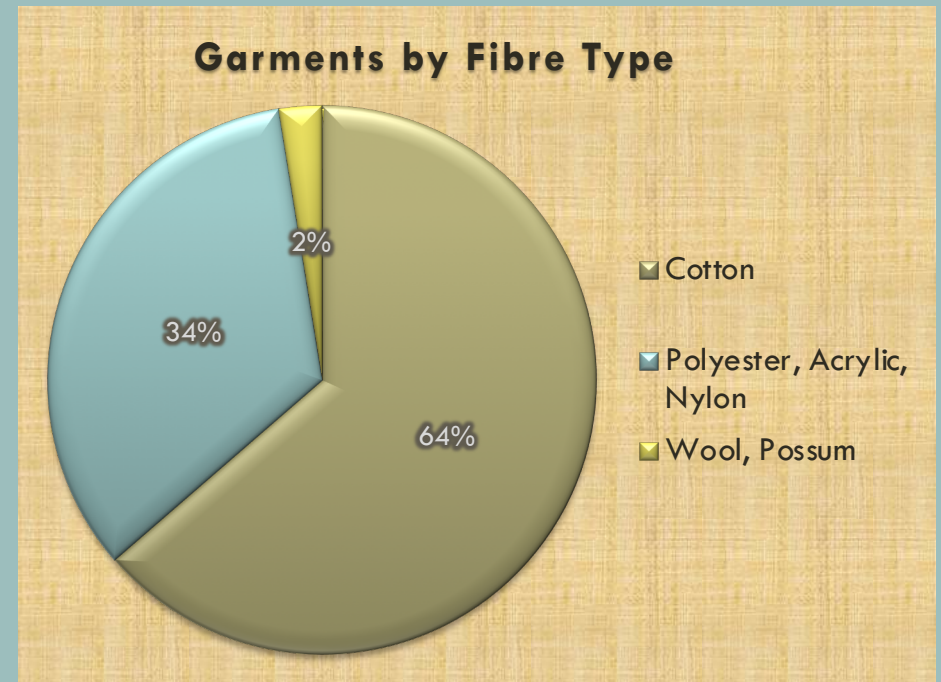
Processed into moving blankets. Made into chew toys for SPCA and shopping bags (as a team building exercise at Ministry for the Environment). To Clyde Quay School, Wellington as an educational fundraising project.

# SOLUTION — BRANDING REMOVAL FOR COMMUNITY REUSE





Fabric	kg	%
Cotton	321	64%
Polyester, Acrylic, Nylon	171	34%
Wool, Possum	13	2%
Other	<1	<1%
	<b>505 kg</b>	



**WELLINGTON ZOO**

Uniform Reuse



# WELLINGTON ZOO — UNIFORM REUSE

<b>Number of Garments Decommissioned</b>	<b>1642</b>	
<b>Total Weight</b>	<b>505 kg</b>	

<b>Environmental Impact</b>		
<b>Water – H<sub>2</sub>O</b>	<b>1,037,000</b>	<b>litres</b>
<b>Carbon Dioxide – CO<sub>2</sub>e</b>	<b>13,157</b>	<b>kg</b>



Calculations based on WRAP UK report titled "Valuing Our Clothes" (2012 updated 2017)  
see [http://www.wrap.org.uk/sites/files/wrap/VoC\\_FINAL\\_online\\_2012\\_07\\_11.pdf](http://www.wrap.org.uk/sites/files/wrap/VoC_FINAL_online_2012_07_11.pdf)

	No. of garments	Weight (kg)	Carbon CO <sub>2</sub> e (kg)	Water ('000 l)
Reuse within community	479	208	5419	427
For reuse in 2 <sup>nd</sup> generation product	750	164	4272	337
Not fit for purpose – returned to supplier	204	45	1174	92
Waste – too degraded for reuse	209	88	-2,292	-181
<b>Totals</b>	<b>1642</b>	<b>505 kg</b>	<b>8,573 kg conserved</b>	<b>856,000 litres conserved</b>

# LESSONS — TAKE OUTS

To lower environmental impact delay rebranding exercises, look at ways to potentially slow consumption e.g. consider what the Zoo's position could be on mending uniforms.

For optimal maintenance of garments provide staff a best practice sheet for laundering uniforms.

Some garments are branded in several places, at decommissioning this increases the cost of removal – extra branding can be a barrier to reuse.

Encourage improved alignment of clothing design and recycling processes by including consideration of design for end-of-life in Request For Proposals (RFPs).

Encourage Extended Producer Responsibility (EPR) by requesting an end-of-life plan including costs in RFPs.

Small/medium organisations often do not have the clothing expertise to de-risk uniform procurement. In this case working with a new uniform supplier unaccustomed to the requirements of Zoo clothing resulted in garments which were not fit for purpose. Smaller organisations could benefit from contracting in garment expertise to assist in the often complex navigation of clothing procurement.

# SORTING UNIFORMS — WELLINGTON ZOO + THE FORMARY STAFF

