REDRESS

Hong Kong's clothing waste - local challenges and opportunities

Material recovery solutions for
Hong Kong's non-wearable clothing waste

About this report

This report highlights the fundamental needs and benefits of the circular economy for Hong Kong's fashion and textile industry, specifically tackling unwanted, non-wearable clothing waste that usually ends-up in landfills. It aims to inform about the current waste issue, while proposing specific, systemic, replicable solution concepts that will enable circular fashion practices. This report sets out actions that all stakeholders from the local industry, from brands, to designers, manufacturers, and policymakers can take to achieve this shift.

This report is part of Redress' ongoing research work exploring circular fashion opportunities to solve Hong Kong's local clothing waste issue. The development and publishing of this report is supported by The VF Foundation.

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Executive Summary

Textile waste is widely recognised as a growing global issue. Locally in Hong Kong, an average daily quantity of 402 tonnes of textiles were landfilled in 2023 [1], of which a substantial portion is thought to be clothing. While there are many solutions in development globally, in Hong Kong progress is slow. This report highlights the challenges and opportunities, and calls for action for material recovery solutions for non-wearable clothing waste to build stronger leadership and example in our region.

The challenges

The lack of specific data about the nature of the textile and clothing going to landfill (such as composition mix, colour and condition) is the first hurdle to be overcome. This type of data will enable the Hong Kong fashion and textile industry to understand what solutions need to be developed to address today's clothing waste issue. Redress, one of Hong Kong's charities operating a Takeback Programme, made a pilot study to get insights on the non-wearable clothes that they received. Results show that there is a big opportunity in recovering textiles to a higher value than what is done today: between 15% and 37% of non-wearable clothes could have potential for reconstruction or fibre-to-fibre recycling.

Hong Kong is facing another three major hurdles:

- Lack of sorting and recycling infrastructure: Hong Kong's textile recycling infrastructure is currently not robust enough to tackle the extent of the current local clothing waste issue.

- Lack of perceived business value: Brands with a presence in Hong Kong do not see the business value of enabling and implementing efficient textile and clothing waste management.

- Lack of consumer education: Hong Kongers' consumption and disposal behaviours are far from responsible and sustainable. Consumers' purchasing habits are fueled by businesses constantly pushing new products to them, which they treat like disposable items. In turn, consumers are not aware of the consequences of fashion's waste.

The opportunities

To unlock a successful local circular fashion economy and tackle Hong Kong's clothing waste, there is no silver bullet solution. Hong Kong's fashion industry will need to rely on diverse strategies, all aligned with the same aim of reducing, capturing and diverting from landfills (non-wearable) clothing waste. Many untapped opportunities have been identified, from small replicable operations to larger undertakings, spanning across infrastructure, mindset shift and governance.

These include advancements in sorting technologies to improve material recovery, developing remanufacturing initiatives that can transform discarded clothing into new products and building stronger, actionable stakeholder education on circular fashion practices. By implementing these strategies, the industry can significantly reduce and divert textile waste from landfills and recover materials for higher-value applications.

Finally, the report outlines specific actions that all stakeholders—including brands, designers, manufacturers, and policymakers—can take to facilitate this transition. Key recommendations include building a strong ecosystem to promote collaboration on circularity across the industry, increasing designer education on 'eco-design', and advocating for supportive government policies that incentivise circularity. By fostering commitment to these initiatives, Hong Kong can position itself as a leader in circular fashion, addressing the current local textile waste while promoting long-term environmental and economic benefits for the local textile industry.

Sort-a-thon, annual consumer campaign to sort out the clothes collected from Get Redressed Month, Credit: Redress

The lay of the land, Hong Kong's clothing waste issue

In order to tackle Hong Kong's clothing waste issue at scale, and in the most effective way, it is critical to first understand the current situation: from the waste volumes, to the type of waste, and what might be the root cause of such waste.

The 3% Mountain, exhibited in June, 2011 at Hong Kong's iconic Star Ferry. Credit: Redress

Sort-a-thon, annual consumer campaign to sort out the clothes collected from Get Redressed Month. Credit: Redress

The majority of unwanted clothes ends up in landfill

In Hong Kong, an average daily quantity of 402 tonnes of textiles were landfilled in 2023 [2]. This is the equivalent of 17,480 suitcases of textiles landfilled every single day [3].

Textile waste is defined as any waste textiles, from industrial leftovers to bedding, furnishings and clothing. In Hong Kong, like in many other regions of the world, we do not have data on the percentage of landfill textile waste that is made up of clothing, and it is difficult to distinguish and measure the sources and types of waste textile once in the landfill as they quickly become degraded. Brands and manufacturers also currently don't (and are not required to) disclose the quantity of pre-consumer garment waste they are sending to landfill.

If we look closely at the municipal waste waste data for 2023, textiles originating from domestic waste sources accounted for about a third of the total textile waste, while commercial and industrial waste accounted for the rest [4]. It is most likely that if not the majority, at least a substantial portion of domestic waste is clothing - in 2020, when Hong Kongers were asked how they dispose of clothes, nearly one third claimed that they have previously thrown unwanted clothes in the garbage [5]. As for the commercial and industrial waste, although hushed, it is still common practice in the apparel industry to dispose of unsold stock and damaged goods into landfills. In 2018, an informal source of the Environmental Protection Department estimated clothing to be about 50% of the total textile waste, this estimation probably still holds true today.

Textile waste only represents about 3.7% of the total municipal waste landfilled. This might seem like a small issue, but in the current context of Hong Kong's landfills, efforts to keep textile waste out of landfills are non-negligible.

"Based on the current daily waste intake, it is projected that both landfills will be exhausted in 2026"

Tse Chin-wan, Hong Kong's Secretary for Environment and Ecology, told lawmakers in January 2024." [6]

In addition to the waste issue itself, sending textile, and particularly clothing, to landfill represents a financial missed opportunity for Hong Kong's local textile industry. Globally, of the total fibre input used for clothing, 87% is landfilled or incinerated, representing a lost opportunity of more than US$100 billion annually [7].

Finally, with the increasing pressure of global legislation regarding circular practices in fashion, and the consumers heightened awareness of fashion's environmental issues, dumping textiles into landfill represents increasing business and reputational risks. This practice must come to an end.

Qualifying the unwanted clothes

Not all unwanted clothes end up in landfills. Two-thirds of Hong Kongers claim to give away at least some of their unwanted clothes to charities and recycling organisations [8]. This provides an opportunity to go beyond data points on the general (and limited) volume of unwanted clothes that we have access to and to start mapping out the quality of these items: from composition mix to colour and condition. This type of data will enable the Hong Kong fashion and textile industry to understand what solutions need to be developed to address today's clothing waste issue.

Redress is one of Hong Kong's charities operating a Takeback Programme, collecting and sorting an average of 41 tonnes of unwanted clothing from the public per year. This might seem like a small volume compared to Hong Kong's 146,730 tonnes of annual textile waste [9], yet, Redress' 41 tonnes of clothing gives interesting insights as to what Hong Kongers dispose of.

Sort-a-thon, annual consumer campaign to sort out the clothes collected from Get Redressed Month. Credit: Redress

Are unwanted clothes wearable?

A majority (between 60% and 75%) of the clothes given to Redress are still in good enough shape to be worn again. These clothes go through Redress' resale channels as well Redress' network of local charities.
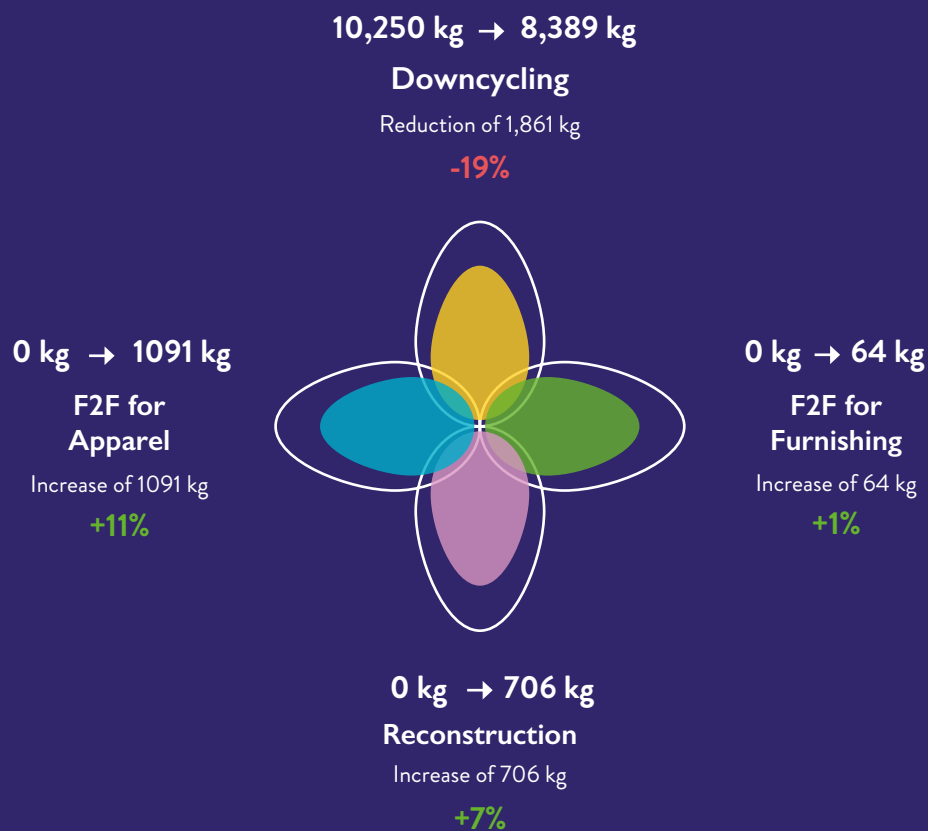
The rest is considered non-wearable. A very small portion (below 5%) of the clothes is unsuitable for material recovery, such as moldy items and non-textile items, and therefore have to be sent to landfill. The balance (between 20% and 30%) goes to Redress' downcycling [10] channels. Due to its environmental mission, Redress is currently the only clothing collection organisation in Hong Kong handling unwearable clothing through a downcycling solution to try to capture more value from materials.

What is the potential of non-wearable clothes?

In Hong Kong, the non-wearable portion of clothes which are given by the public to charities, or dropped in clothing recycling bins are destined for export to other countries, landfill or downcycling (for example with Redress' Takeback Programme). This is potentially a missed opportunity for Hong Kong to revalue and recover better this portion of clothing 'waste'.

Redress set out to determine if there are indeed better ways, of higher value, to recover the textile materials of the products. This resulted in a data collection campaign for their own 'downcycling' stream through July to October 2024 in order to further qualify the non-wearable clothes: from product type to color, fibre composition, weight and condition. Redress then built a framework of material recovery decision rules based on specific combinations of data points (for example, a white piece of clothing in 100% cotton has the potential to go for fibre-to-fibre recycling for the apparel industry, while a multicolour piece in a mix of 4 different fibres will be destined to downcycling). The goal of this framework and textile recovery rules was to establish a systematic way of assessing the non-wearable clothes.

While more details regarding the framework are provided in the Appendix, here is a summary of the results.
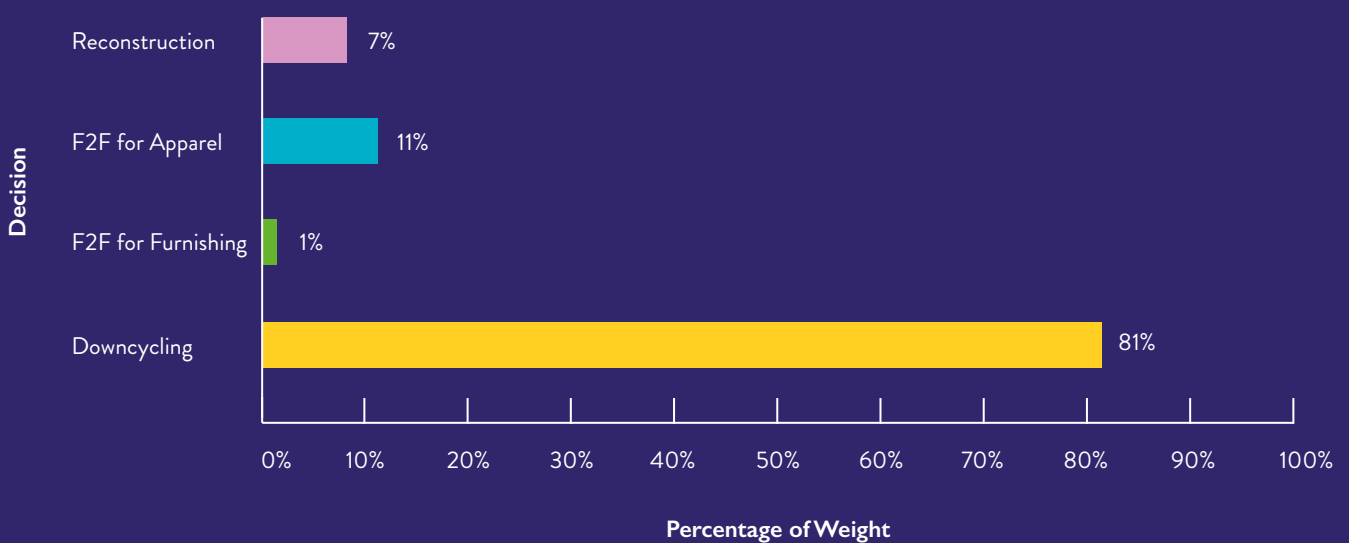
10,250 kg → 8,389 kg
Downcycling
Reduction of 1,861 kg
-19%

0 kg → 1091 kg
F2F for Apparel
Increase of 1091 kg
+11%

0 kg → 64 kg
F2F for Furnishing
Increase of 64 kg
+1%

0 kg → 706 kg
Reconstruction
Increase of 706 kg
+7%

Total Weight of items per Decision

Decision	Percentage of Weight
Reconstruction	7%
F2F for Apparel	11%
F2F for Furnishing	1%
Downcycling	81%

Percentage of Weight (0% – 100%)

- The downcycling portion could be reduced by 19% to contribute to other material recovery channels of higher value: in particular, fibre-to-fibre recycling for apparel could divert 11% of the stock currently going to downcycling, and reconstruction could divert at least 7%.

Textile material recovery definitions

from the highest to the lowest recovery value

1. **Reconstruction (also known as remanufacturing)**: This consists of processing the original garment into a new design, without transforming it back to its fibre state. For example, an old pair of denim jeans could be reconstructed into a denim jacket.

2. **Fibre-to-Fibre (F2F) Recycling for the apparel industry**: This consists of processing the garment into fibres, and then into yarns and fabrics of high quality. By doing so, it can make new garments.

3. **Fibre-to-Fibre (F2F) Recycling for the furnishing industry**: This consists of processing the garment into fibres, and then into yarns and fabrics of low quality. By doing so, it can make new products for the furnishing industry, for example carpets and rugs.

4. **Downcycling**: This consists of reusing or shredding the materials of the products so that it can be transformed into lower-value products that can be used in other industrial sectors. Downcycling ensures a second life by transforming textile waste into items like insulation, single use wipes, filling for mattresses, car seats or boxing bags, etc.

Fibre composition analysis
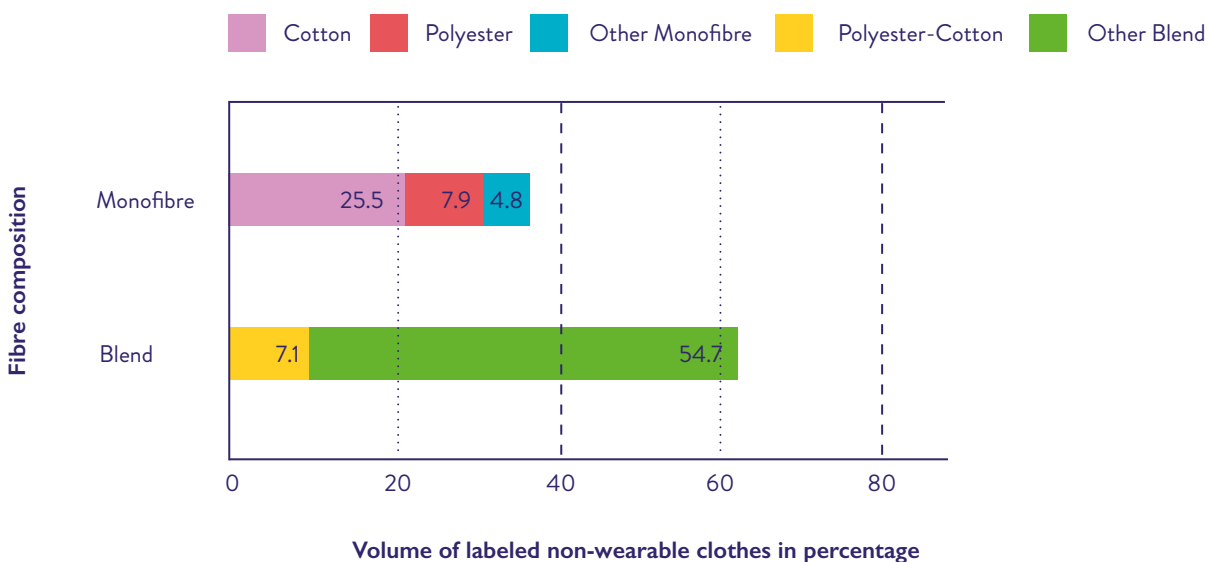
Volume of labeled non-wearable clothes in percentage

- Fibre-to-fibre recycling potential, based on the volume of non-wearable clothes that had clear fibre composition labels:

  – About two-thirds were blended compositions. Most of these blends are not commonly processed by the industry, apart from 7.1% of polyester-cotton blend that could find its way to fibre-to-fibre recycling.

  – Over a quarter was 100% cotton, which is significant as it has the most potential for fibre-to-fibre recycling.

Amount of items per Top Colour
10 Colours outside of Top4 are aggregated into 'Other' category

Top Colour (y-axis) vs Percentage (x-axis):
- Multicolour: 32.5%
- White: 14%
- Blue: 11.1%
- Black: 10.7%
- Other: 31.7%
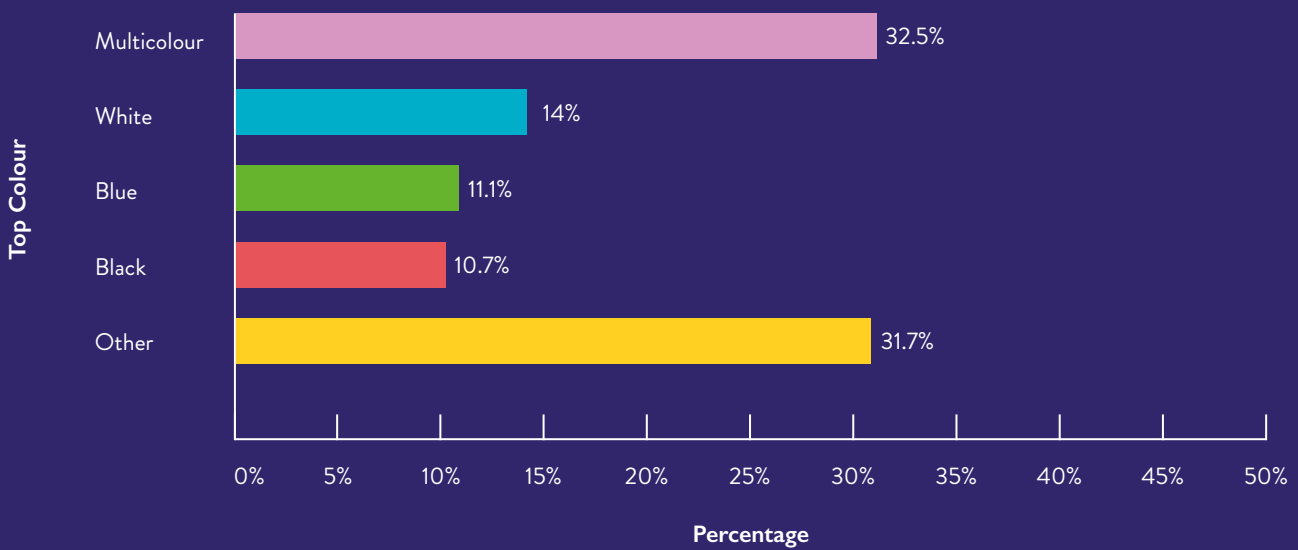
- Almost two-thirds of the items were multicolour and 'unusual' colours, while the last third was 'standard' colours white (14%), black (11%) and blue (11%). This range of colour adds some complexity for recycling as current fibre-to-fibre recycling relies heavily on colour sorting, and buyers of recycled fibres tend to buy 'standard' colours over 'unusual' ones.
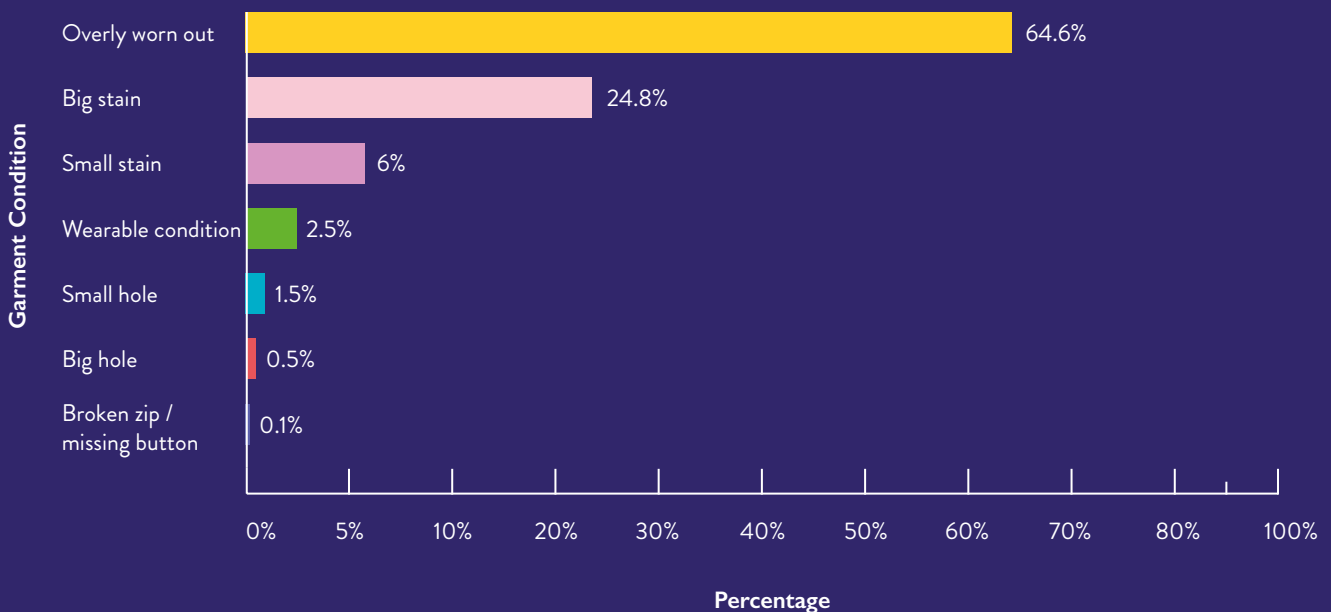
Amount of items per Condition

Garment Condition (y-axis) vs Percentage (x-axis):
- Overly worn out: 64.6%
- Big stain: 24.8%
- Small stain: 6%
- Wearable condition: 2.5%
- Small hole: 1.5%
- Big hole: 0.5%
- Broken zip / missing button: 0.1%

- The two main causes for deeming a garment non-wearable were that the item was overly worn out or that it had noticeable stains.

When looking at these results, it is important to note that almost half (46%) of non-wearable clothes were missing a composition label, which led the decision making to be, by default, downcycling, or reconstruction if the condition of the clothing allowed. Therefore, if the composition was known - either thanks to better labeling, or composition identification technologies - the recovery methods results with fibre-to-fibre recycling could have been even more encouraging, as the results show below.

Total Weight of items per Decision
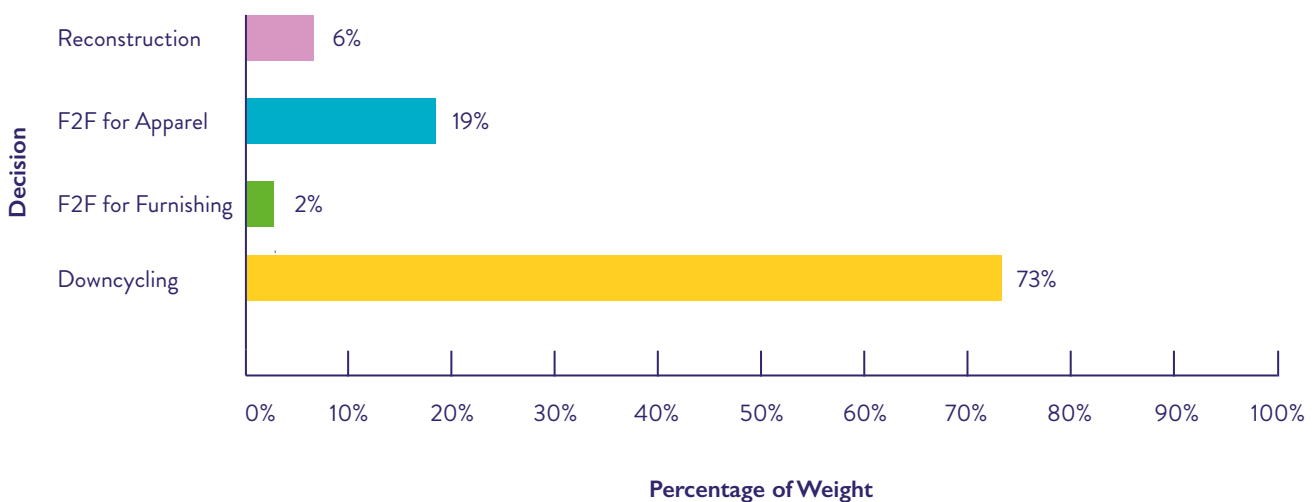
Here the downcycling portion shows the potential to be reduced by a further 8% (from 81% to 73%) to contribute to fibre-to-fibre recycling for apparel (from 11% to 19%).

Data analysis based on the same data set, but excluding all items with unknown composition.

The study led by Redress from July to October 2024 is small and yet, it showcases a big opportunity in recovering textiles to a higher value than what is done today. To unlock these 'better' recovery solutions, fibre composition identification will be a critical component, as well as setting up infrastructure and partnerships.

Understanding the local challenges leading to excessive clothing waste

Hong Kong's clothing waste issue is the consequence of a few different types of challenges - some hitting global themes in the fashion industry, and others specific to the region. These span across different stakeholder groups, from government, to manufacturers, brands and to consumers.

Redress gathered local industry stakeholders [12] to dig into these issues and understand better how they can be addressed.

While many challenges play a part in the waste issue, three major topics were prominently identified:

- Lack of sorting and recycling infrastructure: Hong Kong's textile recycling infrastructure is currently not robust enough to tackle the extent of the current local clothing waste issue. This lack of infrastructure is attributed to a few factors:

  – land is scarce and expensive in Hong Kong, which is hindering any good return on investment.

  – the diversity in quality and product types in Hong Kong requires recycling technology which is still immature - the business case for setting-up new recycling infrastructure is therefore currently weak.

  – the market for locally recycled fibres and yarns is very small. The Billie System, implemented by Novetex is an example: it is one of the rare recycling plants in Hong Kong, and although a break-through for the region in 2019, it is still not running at full capacity - not because of a lack of feedstock but rather a lack of buyers for the recycled fibre output.

Brainstorming on Hong Kong's clothing waste issue root causes during a workshop with key stakeholders, facilitated by Redress in August 2024. Credit: Redress

- Lack of perceived business value: Brands with a presence in Hong Kong do not see the business value of enabling and implementing efficient textile and clothing waste management. This is attributed to a few factors:

  - Hong Kong's government currently has neither proposed nor passed any comprehensive policy for sustainable and circular textile products which could incentivise businesses to take responsibility and take action.

  - there is very little urgency felt in Hong Kong when it comes to solving the problem of textile waste.

  - there is currently no opportunity for collective actions which could motivate business, or unlock investments needed locally.

- Lack of consumer education: Hong Kongers' consumption and disposal behaviours are far from responsible and sustainable. Consumers' purchasing habits are fueled by businesses constantly pushing new products to them, which they treat like disposable items. In turn, consumers are not aware of the consequences of fashion's waste.

Sort-a-thon, annual consumer campaign to sort out the clothes collected from Get Redressed Month, Credit: Redress

Uncovering solutions tackling clothing waste

Mindset shift

- educating consumers
- education to & action from industry

Infrastructure

- identification of textiles

- re-design

Governance

- industry coalition
- government policy
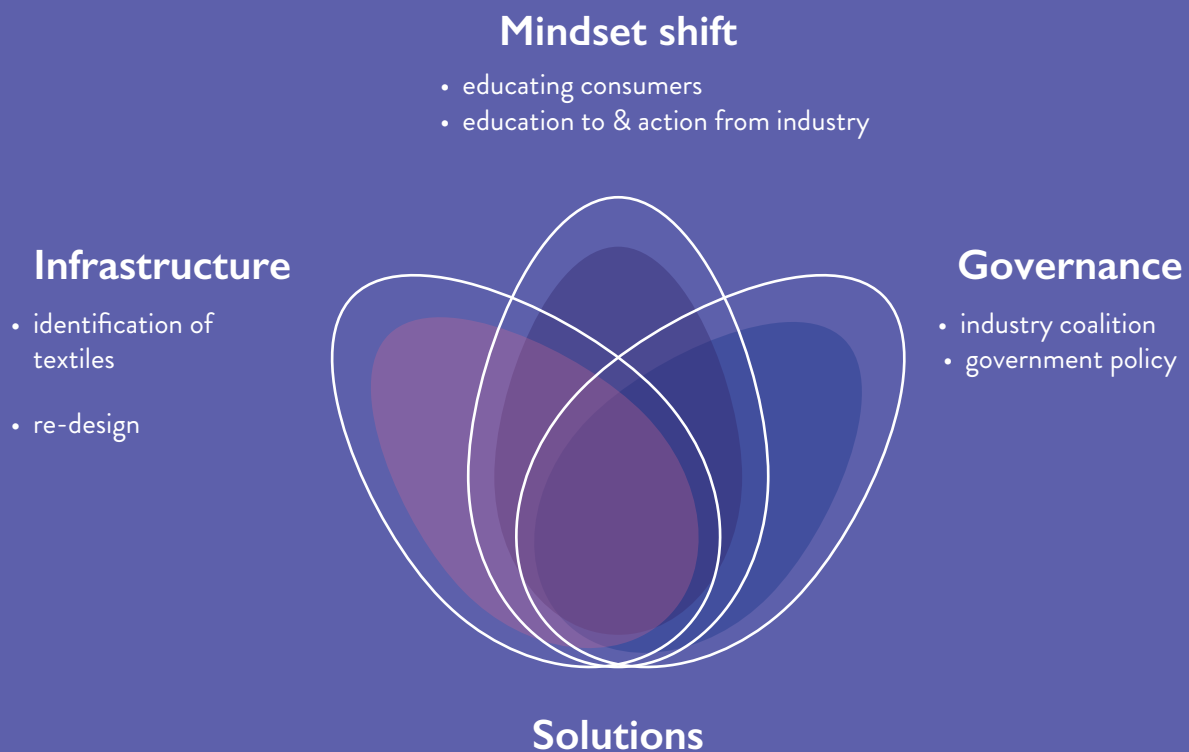
Solutions

There is no silver bullet solution to tackle Hong Kong's clothing waste. A successful local circular fashion economy will need to rely on diverse strategies, all aligned with the same aim of reducing, capturing and diverting from landfills (non-wearable) clothing waste. Many untapped opportunities have been identified, from small replicable operations to larger undertakings.

In this report we have selected solutions which have appeared as the most relevant for Hong Kong today [13], spanning across infrastructure, mindset shift and governance.

Infrastructure solutions

1.Identifying clothing waste better with sorting technologies

The first step to any sort of material recovery - from fibre-to-fibre recycling to redesign, in any sort of industry, is sorting. Sorting clothing is the key to unlocking targeted, effective solutions for clothing waste: depending on the product type, the fibre composition, the different attributes, the condition, so that the best next life can be determined. Sorting enables the industry to turn non-wearable clothing that currently have no other destination than downcycling, landfill or incineration into valuable feedstock for higher value material recovery.

The challenge lies in the fact that sorting, so far, has had to be done by human labour. Sorting has historically been done in regions of the world where clothing waste was imported (far from the main fashion consumer markets), where human labour is affordable and big investment is lacking. And, with many factors to analyse and feedback on, and a feedstock that's constantly changing, automation has barely taken over.

Today, however, the landscape of clothing waste is changing - the volumes of clothing waste are at an all time high everywhere in the world. Clothing waste is no longer the issue of select clothing importing regions, but an issue localised wherever there is a fashion consumer market - which means everywhere on the planet where there are humans. Additionally, exporting clothing waste to regions such as Chile, Ghana, Kenya etc, is becoming increasingly challenging:

• from a customs and regulations point of view, as the rules are getting stricter in many regions, with the European Union leading the charge

• from a financial point of view, as shipping internationally is getting more expensive

• and of course, from a social and environmental sustainability point of view, as the negative impacts outweigh largely the positive ones (for example with the crisis in Chile's Atacama Desert or in Accra, Ghana).

This is why the need for sorting locally is increasing. In a region like Hong Kong, where human labour is costly and big financial investments are available, automation has to scale up. Here are two examples of sorting technologies making strides.

Post-consumer waste. Credit: Luke Casey

Fibresort®, a commercialised technology

Fibresort® [14] was engineered by Belgium-based company Valvan to tackle the growing European post-consumer clothing waste. It is a technology that can identify and separate textiles based on fibre composition and colour properties, processing 1 piece of clothing per second. It is based on a combination of NIR (Near-Infrared), to analyse the fibre composition, and RGB camera technology, to analyse the colour. The Fibresort® system is trained to identify six main fibre types (wool, cotton, polyester, viscose, acrylic and nylon), but the textile library can be extended to other fibers.

This technology is a huge advancement for automated sorting of clothing but as with many technologies, it has some limitations. The two main ones are:

- When textiles are made up of mixed fibres, the algorithm only gives an estimation of the fibre concentration. Atypical blends or multiple fibre blends are harder to sort accurately.

- The technology is a surface scan, which means it is suited to clothing using the same materials through and through. Clothing that has linings cannot be sorted accurately.

Valvan's Fibresort® was commercialised in 2024 [15].

Sort on fiber + color

1 piece/second

Automatic

COTTON   POLYESTER   POLYCOTTON

Credit: Fibresort®
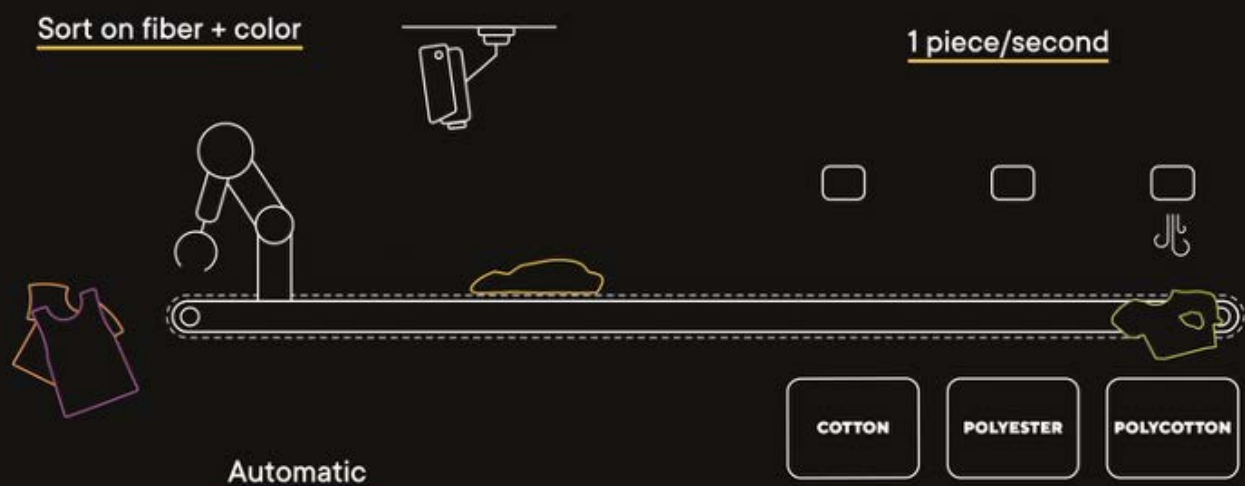
Smart Garment Sorting System for Recycling, a piloting technology

The Smart Garment Sorting System for Recycling [16], a technology currently under research at the Hong Kong Research Institute for Textiles and Apparel (HKRITA) and piloting at the Open Lab [17], focuses on sorting post-consumer clothing. The system facilitates clothing categorisation with the support of a proprietary well-trained algorithm using Artificial Intelligence, and a proprietary garment database that allows it to recognise a variety of garments. The classification modules determine the clothing type, the fibre composition and the clothing structure. The classification modules are interlinked with each other to ensure the consistency of the results.

This technology has the potential to take the automated sorting of clothing a step further in terms of accuracy. Redress has been supporting this development by providing clothing for the AI training and testing, as well as participating in the project steering committee to advise on the strategic direction of this solution.

2. Offering a new life for the non-wearable through re-design and remanufacturing

As discussed in Chapter 1, Redress estimates that 3 to 17% of non-wearable clothes still have the potential to be recovered through remanufacturing. The clothes themselves might not be in good condition to be worn, but the textile can be salvaged as it is (without having to shred and recycle) to give life to a new re-designed product. Remanufacturing is a method that has the potential to be scaled through replication, when systemic methods can be put in place.

Building on Redress' goal to empower emerging fashion designers to create circular products, the charity launched the Redress Designer Residency programme in 2024. The programme has been supporting a selection of Asia based designers through collaborative projects that develop their skills and knowledge whilst showcasing solutions for Hong Kong's non-wearable clothing waste recovered by Redress.

Credit: HKRITA

Damini Mittai, I Am the Landscape

Textile art raising awareness about Hong Kong's fashion consumption

Designer Tiffany Pattinson set out to showcase the beauty of unwanted clothes, with the intention of raising consumer awareness to Hong Kong's clothing waste issue. She created a performance art piece named 'Shell scapes: Reforming Waste [18] for which she sourced non-wearable clothes from Redress' Takeback Programme feedstock, and transformed them over a twelve week period into art pieces celebrating oysters, unsung heroes of climate change.

The designer displayed her work via an art installation 'in progress' at Mondrian Hong Kong's 'The Corner Shop', where Hong Kongers could witness the transformation of clothing waste to vases and other decorative items for the home together as they passed by. The designer's work culminated in a live performance where consumers were invited to reflect on their own relationship with fashion.

Tiffany Pattiinson, Shell scapes: Reforming Waste

Tulika Ranjan, WakamonoT: Memories We Carry

Another example of raising consumers' awareness through art is designer Tulika Ranjan's exhibition 'WakamonoT: Memories We Carry [19], exhibited at Mondrian Hong Kong's 'Corner Shop' in late 2024.

Inspired by the ancient folk craft of oriental knotting, these art pieces, fashioned from non-wearable garments of Hong Kong, served as a gentle invitation to reflect upon our formative journeys, rekindling the spirit of the child that resides within us all. In modernising this ancient technique of knotting, Ranjan artfully navigated the delicate interplay of cherished memories, encouraging us to untangle the knots that no longer serve us, and to embrace the truest versions of ourselves.

Designer Damini Mittai stands behind her work - 'I Am the Landscape'

A third designer in residency, Damini Mittai created an art installation from unwanted garments titled 'I Am the Landscape' as part of Redress' exhibition 'Redressing the Future: Circular Solutions for Fashion Waste' held in May 2025 in partnership with Hong Kong Design Centre. At the heart of her exploration was a central question: What does it truly mean to 'own' a garment? Her aim was to remind the viewer that a garment can never be viewed in isolation. Both the garment and its wearer are part of a much larger, interconnected landscape – one that includes not only people, but also the whole planet.

Thinking beyond the installation to fully utilise all garment waste extending its life further, Mittai designed all the elements to be deconstructed and separated into smaller works of art for various afterlife purposes. The elements can be used as decorative wall hangings, or for those familiar with a needle used to customise or refresh existing wardrobe pieces, for example sewn directly onto a jacket or tote bag.

Denim jacket with patchwork designed by Damini Mittai

Remanufacturing discarded school uniforms into pets accessories

Designer Tulika Ranjan collaborated with Chinese International School (CIS) and Redress to run a remanufacturing pilot, turning old uniforms into pet accessories[20].

An estimated 2.5 million new uniform items are purchased for school students in Hong Kong every year[21]. Despite the efforts of schools like CIS who hold secondhand sales to keep garments in circulation, many uniform items finish their lives too early [in landfills] due to children outgrowing clothes, wear and tear, stains, not enough parents being able to attend secondhand sales[22], or through a still-persistent, though gradually shifting, stigma around purchasing secondhand. This is an important, consistent waste stream which deserves more attention from Hong Kong's community to find several replicable solutions.

During this pilot, Tulika engaged with the CIS students in the development process for feedback and ideas, and shared with them her sustainable design knowledge and skills. The pilot resulted in 121 units of products, using up about 6 kg of used uniforms, with the majority bought back by students and their families.

Designer Tulika Ranjan, through this small scale project, showcased a replicable solution, tapping into a growing market. Currently estimated at over $32 billion, the global market for pet accessories is estimated to reach over $55 billion by 2030, with China representing almost 15% of the global market[23].

Credit: Redress (top), Pet Being Studio (bottom)

Scan to find out more about Redress Designer Residency Programme

Get Redressed Month, college talk, Credit: Redress

Mindset shift solutions

3.Educating consumers to circular practices

The shift to circular practices has to be initiated by all stakeholders of the fashion value chain, including consumers. Their appetite for more sustainable and circular fashion is key to advance and support the industry's initiatives. Therefore, consumers need to understand what circular fashion is, and what their role is within this new system.

Reaching consumers requires using more than one approach as this is a diverse audience, spanning from children to the elder generations. In that regard, Redress has been diversifying the ways to catch consumers' attention:

- Get Redressed Month: Redress has been organising Hong Kong's largest clothing awareness campaign since 2018, in which 120+ schools, companies and retailers take part yearly. Participants can join educational talks, a city-wide clothing drive, a 3-day clothing sorting event and an interactive exhibition. It includes public advertising, usually via posters in the MTR and clothing collection boxes in over 70 public locations, and a strong media presence throughout the whole month of May. Through this campaign, thousands of Hong Kongers are made aware of the issue of clothing waste and introduced to a variety of solutions for them to change their ways of consuming fashion.

- Year-round educational activities: Every year, over 10,000 people benefit from an educational activity delivered by Redress.

  - For school students: Redress has been developing content and activities that are tailored to specific ages, from in-class talks and workshops to publishing a comic book for 5-8yo to understand that clothes are valuable and can be reused in many different ways.

  - For adults: Redress organises monthly clothing sorting sessions where adult participants can see the clothing waste issue for themselves and reflect on their own buying habits.

Although Redress has been an active player in educating consumers about circular fashion, consumption habits are slow to shift and require constant reinforcement. For consumers to rebuild a healthy relationship with fashion, and consumption in general, they need to be exposed much more to the circular economy, in fashion but also in other sectors.

4.Turning industry insights into action

Fashion companies are constantly juggling with competing priorities, and often, the business case of circularity is unclear, or seemingly non-existent. And this is even more so for specific practices addressing clothes' end-of-life. Indeed, only 12.5% of the global

fashion industry has committed to circularity [24], and the topic is not high on CEOs' agendas, with only 18% of fashion executives ranking sustainability as a top three risk to growth in 2025 [25]. However, with 98% of consumers thinking that brands have a responsibility to make positive change in the world [26], and industry projections asserting that the demand of recycled fibres keeps increasing year-on-year [27], global fashion businesses, including Hong Kong's, need to urgently see the importance in recovering value from clothing waste. They need to get onboard, shifting their mindset about circular practices from nice-to-have to future-proofing their business.

To unlock this mindset shift, businesses need to:

1. Understand why circularity is important

2. Have the tools and know-how to get started

3. Commit to circularity

Redress Design Award 2024, Finalists' factory visit. Credit: Redress

Understand why circularity is important

Industry reports are a staple tool to showcase the environmental, social and financial value of circular particles. Sharing reliable insights, industry success stories, and examples of profitable opportunities is key to educate businesses and grow their interest. A number of publications already exist:

- The Ellen MacArthur Foundation [28] has provided great insights for the fashion and textile industry over the years. They have published to date:

  − A New Textiles Economy: Redesigning fashion's future, in 2017

  − Rethinking business models for a thriving fashion industry, in 2021

  − The circular design for fashion book, in 2021

- Global Fashion Agenda [29] is known to publish many reports about sustainable fashion. Some recent ones focus on circular practices:

  − Scaling Circularity Report published in 2022 shared lessons learned from the Circular Fashion Partnership for building pre-competitive collaborations to scale upstream circular fashion systems

  − Upstream Circularity Playbook published in 2024 is a pragmatic guide, offering best practice examples to establish and scale circularity practices in garment manufacturing countries

- The Circle Economy published in 2024 The Circularity Gap Report Textiles [30] highlighting the urgent need to transition to a circular economy: the global textile industry is 0.3% circular [31].

But these reports usually fail to go beyond their calls for action.

Have the tools and know-how to get started

Each region in the world has unique markets, clothing waste feedstocks, infrastructure, etc. It is therefore impossible to replicate theoretical solutions offered in reports. While these reports act as inspiration and catalysers, to be truly effective they need to be adapted to each region. Industry reports need to be paired with concrete action plans led locally that turn the insights into practice.

Companies need more guidance on how to implement and operationalise circular practices. This is the only way to actually ensure that the fashion industry ramps up investments and improves the recovery of clothing waste. This is an opportunity for Hong Kong circular fashion experts and consultants to offer action plans for hyper local solutions.

Commit to circularity

Beyond piloting circular fashion projects, companies must inscribe these action plans in their long term business strategy. They have an opportunity to leverage other companies' circularity goals to invest in and build ecosystems benefitting the wider industry community.

In Hong Kong particularly, the local stakeholders should leverage the fact that the fashion and textile network is already strong to get everyone in the local industry to commit to a collective action plan for circularity.

Governance solutions

5.Coming together by building a coalition

The resources needed to implement circular practices can represent substantial investments in infrastructure, and many stakeholders must get involved. Circularity in fact, relies on collaborative action. This is why cross-sector partnerships, a coalition, should be formed in Hong Kong by fashion and textiles stakeholders to connect needs and resources, or that an existing organisation addressing sustainability, such as the Sustainable Fashion Business Consortium, has the opportunity to add a prominent working subcommittee or focus area to an existing industry body.

Many fashion coalitions and alliances already exist around the world, all with different focuses. Here are some examples of the most prominent ones:

- Global Fashion Agenda's Circular Fashion Partnership [32]: it is a cross-sectoral initiative to support the development of effective circular fashion systems in textile, garment and footwear manufacturing regions, by capturing and recycling post-industrial fashion waste. The partnership seeks solutions to maintain the highest possible value output, following a waste hierarchy approach, and ultimately aims to accelerate textile-to-textile recycling to reintroduce 'waste' materials back into fashion products. The partnership engages 'enabling to identify and address barriers for scale, such as supportive policy and investment. It is currently active in Bangladesh, Cambodia, and Indonesia.

- Cascale [33]: is a global, non-profit alliance of 300 leading consumer goods brands, retailers, manufacturers, sourcing agents, service providers, trade associations, NGOs, and academic institutions. Cascale offers a trusted space for candid dialogues, and for sharing and learning best practices from thought leaders and experts. They are the meeting point for the industry to collaboratively address urgent social and environmental challenges, co-creating solutions that can be scaled across an industry where every voice is heard. They focus on three pillars: nature positive future, decent work for all and combat climate change.

- European Fashion Alliance (EFA) [34]: it aims to empower a prosperous European fashion ecosystem. EFA is a strong common voice advocating for and accelerating the transition of European fashion towards a more sustainable, innovative, inclusive and creative future. It enhances the dynamic exchange of information within the industry, facilitating transfer of information, know-how and best practices within the sector to empower entrepreneurial creativity and innovation skills. EFA co-creates common policy and dialogue between policy makers and fashion professionals.

- The Fashion Pact [35]: it is the largest CEO-led initiative for sustainability in the fashion industry. Every Fashion Pact member is committed to working towards our shared vision for a nature-positive, net-zero future for fashion. In order to reach this industry-wide goal, Fashion Pact sets targets in three specific areas. First, it aims to mitigate climate change through the implementation of Science Based Targets for Climate to achieve net-zero by 2050. Second, it aims to restore biodiversity through strategies aligned with Science Based Targets for Nature. And thirdly, it aims to protect oceans and freshwater from the industry's negative impact through solutions that address pollution from upstream textile production and plastic packaging.

Redress Design Award, Finalists' Education Bootcamp. Credit: Redress

- Fashion Conveners [36]: they are a group of leading nonprofits committed to aligning key fashion industry players around the bold goals and urgent actions needed to shape a restorative and equitable future. They aim to accelerate collective action through connected partnerships within the apparel and accessories value chain, with the ultimate goal of building greater social, economic, and environmental prosperity. Core members, conveners, are creating focused alliances for engaged, connected strategies and aligned implementation, focused on: data, tools, education & events, policy and consumer awareness.

Redress Design Award 2025 Hong Kong industry event at DX Design Hub

All of these coalitions and alliances are tackling the topic of sustainability and circularity around the world, but none are adapted to Hong Kong's local landscape. As identified earlier in the report, in Hong Kong, the desire for the infrastructure is still weak, although needed, and brands in particular, are not showing concrete commitments to buy the output the local circular textile industry has to offer. The investments are scattered and not big enough to solve for the current local textile and clothing waste issue. A Hong Kong specific coalition or working subcommittee of an existing fashion and textiles organisation must address these three topics through:

1. Knowledge sharing: seminars and summits are organised in order to ensure the member organisations are up-to-date with the latest sustainability and circularity advancements, from global legislation to technological break-through, and to instigate the desire and demonstrate the opportunity to invest resources in local infrastructure for circular textiles. Members of the coalition have a safe space where they can share their learnings from their own circularity journey.

2. Commitment to circularity: members are signatories to a circular practices agreement in which they have clear, measurable commitments to investing in local infrastructure and, for brands, buying recycled fibres coming from the local circular textile industry. The coalition has an award system in place which celebrates the stakeholders, and particularly brands, who are the front-runners in implementing circularity, while the coalition system also aims at lifting the ones who are lagging behind.

3. Financial investment: each member must contribute to investing financially in circular textile infrastructure through the coalition fund. The coalition supports funding projects that are too big for only one stakeholder to take on, and that serve the whole ecosystem. A part of the funding is also used for projects that contribute to the success of the commitments of the stakeholders.

For this coalition to be successful, it should be led by a trusted entity that cannot profit from the coalition, while members should be largely brands, and all the other stakeholders of the fashion value chain. Such a coalition would position Hong Kong as a leader in circularity, and could eventually expand to involve other Asian countries.

6.Supporting a circular economy with policy

Legislation plays an important role in advancing necessary practices in industry. Developing regulations on circular fashion and textiles for Hong Kong would further signal to the local ecosystem that Hong Kong's clothing issue must urgently be addressed.

Around the world many Extended Producer Responsibility (EPR) schemes for textiles have been implemented or are being developed: the European Union, Australia, Chile, Kenya, select US states [37]. The fashion industry's shift towards circularity requires urgent action. EPR schemes play a crucial role in enabling this transition by holding producers accountable for the lifecycle of their products.

Some regions have gone further [38], proposing and implementing policy targeting specifically circular practices: from ecodesign requirements, to textile waste management (including the export of secondhand goods), and to fibre-to-fibre recycling goals:

- The European Union 'Strategy for Sustainable and Circular Textiles' is in consultation with the goal that by 2030 textile products placed on the EU market are long-lived and recyclable, to a great extent made of recycled fibres, free of hazardous substances and produced in respect of social rights and the environment [39].

- France enacted in 2020 their anti-waste law, banning incineration of unsold clothing inventory, and requiring manufacturers, distributors, and stores to donate or recycle [40].

- China aims to recycle a quarter of all its textile waste and wants to produce 2 million metric tons of recycled fibre annually by 2025. By 2030, aims to be able to recycle 30 % of its textile waste and produce 3 million tons of recycled fibre annually [41].

Redress Design Award 2023 TAL visit

Hong Kong has an opportunity to follow this legislative wave, learning from already existing legislation and existing industry reports [42], unlocking systemic change in the fashion and textile sector and driving progress towards a circular fashion model. Policy can be a catalyst to solve Hong Kong's clothing waste issue.

Calls to action for Hong Kong

Get redressed Month 2025 key visual. Credit: Redress

Recommendations to brands, designers and manufacturers

Brands, designers and manufacturers must be held accountable for the products they place on Hong Kong's market. They have the responsibility to understand the product's impacts throughout its lifecycle, and especially at the end of its life, when it eventually becomes 'waste' for the consumer.

On building the ecosystem

As daunting as circular practices can be for brands and manufacturers, they become much easier to strategise once acquainted with the topic. They must commit to the implementation of circular fashion and get started and ensure teams receive relevant training. Connecting with their peers from the industry, including recyclers, to build strong partnerships - eventually a coalition, will only support the implementation of local circular practices. The last step to a successful Hong Kong local circular fashion economy is when brands will take part in investing in the required infrastructure.

Designers **Government** **Recyclers**

Brands **Manufacturers**

On design

Tackling Hong Kong's clothing waste issue opens new design opportunities: designers and brands should shift traditional sourcing of virgin textiles to sourcing 'waste'. Current 'waste' feedstocks offer a multitude of avenues to be used, from remanufacturing, to textile waste recycled into fibres.

While looking into new ways of designing clothes, minimising waste at the onset also means designing products enabling their recyclability, ie, adapting the product so it is fit for Hong Kong's local recycling infrastructure.

Finally, brands and designers have the responsibility to educate their consumers about the product they have designed, facilitating material recovery later on.

Recommendations to recyclers

Waste collectors and recyclers have a crucial role to play in the adoption of Hong Kong's circular practices: they are the make or break of operating the infrastructure for textile material recovery. They are the ones that will be able to qualify and sort the 'waste' to ensure the highest material recovery solution possible. They also have the opportunity to venture into the remanufacturing and recycling of textile 'waste' and become experts at doing so - from revising ways of making garments to operating recycling machinery for quality outputs. They should position themselves as equal partners to brands to provide guidance on new ways of manufacturing fashion textile products.

While recognising why circular practices are so important for Hong Kong, and how they can be profitable new business opportunities, waste collectors and recyclers must seek financial support from industry stakeholders, and particularly brands. They must come

together to invest in the required infrastructure, making sure that it is adequately solving Hong Kong's clothing waste issue and adapted to brands and manufacturers needs.

Recommendations to the government

With fashion being a global market and a global industry, legislation developed and enforced in specific regions such as the European Union or China will automatically impact Hong Kong, a hub for fashion in Asia. This is good news because it means half of the work in implementing circular practices is already in motion. However, these regional policies do not account for what is happening in Hong Kong's territory - especially at the end-of-life stage of fashion and textile products. Today, Hong Kong is facing a clothing waste issue.

On clothing collection and disposal

The Home Affairs Department (HAD) has launched the Community Used Clothes Recycling Bank Scheme since 2006. The non-governmental organisations operating this scheme collect used clothes donated by the public regularly (aka post-consumer clothing 'waste'). However today there is a lack of transparency as to what happens to these clothes once they have been deposited in the bins. The HAD should consider requiring NGOs involved in the scheme to be fully transparent and disclose publicly their operations and the volumes they process. This would increase trust from the public (consumers) to use these services to dispose of their clothing responsibly. It would also help the wider industry to understand the scale of post-consumer clothing 'waste' and develop solutions accordingly.

Additionally, the government should also consider asking the same transparency from local brands and manufacturers that today usually dispose of their pre-consumer 'clothing' waste in Hong Kong's landfills. Brands and manufacturers should be required to disclose publicly their volume of pre-consumer waste, and the methods of disposal.

Post-consumer waste. Credit: Luke Casey

Sort-a-thon, annual consumer campaign to sort out the clothes collected from Get Redressed Month, Credit: Redress

On textile and clothing overall policy

Hong Kong's government is committed to prioritising environmental sustainability initiatives across industries to mitigate environmental pollution, support environmental technology and green buildings, advocate energy saving and waste reduction as well as strengthen environmental education to build a sustainable future for Hong Kong.

Therefore, policymakers may consider drafting Hong Kong-adapted regulations similar to what the European Union has recently put in place with their 'EU strategy for sustainable and circular textiles'. In particular, the government should focus on:

• Requiring brands to conceive products following the principles of eco-design

• Incentivising brands to use preferred fibres, with a strong push on the use of recycled fibres coming from pre and post-consumer textile sources

• Taxing the import of clothing made from virgin materials, to encourage the shift toward circular and sustainable alternatives

• Reviewing the export regulations of textiles to other countries to limit the dumping of secondhand goods in other countries which do not have the capacity to manage them properly

• Supporting local businesses that offer services that extend the life of clothing, such as repair services, altering and upcycling businesses, secondhand retailing

• Supporting innovation and adoption in the clothing collection, sorting and recycling sectors

Strengthening policies on circular practices would push fashion producers to take responsibility for the products they place in the Hong Kong market, and signal to the global fashion industry that Hong Kong is positioning itself as a sustainable and circular fashion hub.

End Fashion Waste. Credit: Redress

Call for participation

Redress intends to catalyse the necessary ecosystem for scaling clothing 'waste' recovery initiatives in Hong Kong. To help transform this report's insights into actionable steps and influence our current local landscape, we call out for all key stakeholders in Hong Kong's apparel value chain to join forces with us and collaborate on tackling Hong Kong's clothing waste issue.

We invite you to sign-up through the link below to stay connected and informed about future industry consultations, impact initiatives, and upcoming events and opportunities to get involved. We value your involvement and can't wait to share what's next!

Thanks for being part of our community!

Sign up now

At Redress, we're always looking to grow our impact—and we can't do it alone. We welcome collaboration in many forms, from financial support to strategic partnerships that build on our existing work. Reach out to us if you would like to partner with us, engage our teams, share your success story, or simply explore ways we might work together to accelerate a circular fashion future in Asia.
Please contact Hannah Lane, Development Director at hannahlane@redress.com.hk

Appendix

About the study

The study was run between July and October 2024 by Redress with support from The VF Foundation.

The data collection was done by Redress staff and trained volunteers in Redress' warehouse. The development of the framework for the data analysis was done in partnership between Redress and Francisco Fonseca, independent data scientist.

For any questions regarding the study, or to get access to our full framework and dataset, please contact hannahlane@redress.com.hk.

Data collection

Volume of non-wearable clothes processed

The Redress Takeback Programme currently processes about 41 tonnes of clothing annually, 25% (i.e. 10.25 tonnes) of which are destined for downcycling. Between August and October 2024, Redress captured and analysed data for 331 kg (1667 individual items) of non-wearable clothes, representing 3.2% of the yearly volume that Redress currently allocates to the downcycling channels.

Dataset

In scope:

- Clothes previously sorted by Redress and allocated to 'downcycling' only

- Garments that have composition labels

- Garments that have no composition labels

Not in scope:

- Clothes previously sorted by Redress that have company/school logos (for example, sports event t-shirts, or school uniforms)

Each garment item was visually inspected and the corresponding data was collected in a tabular format, where each row corresponds to a piece of clothing with the corresponding attributes as columns.

Notes on data collection:

- On composition: the order of the fibres is relevant but the corresponding percentages for the main, secondary and third fibres is not registered (60/40 mix will be registered the same as a 90/10 mix).

- On colour:

  - 'White' must be entirely white (no pattern/designs/ graphics)

  - If has patterns (Striped, Checkered) [White Base] => mark as the majority colour.

  - If has majority white base but coloured collars sleeves => mark as collar/sleeve colour.

Colour Polyurethane (PU)	Garment type	Company/ school/club/ event logow	Weight (g)	Main Fibre content	Secondary fibre	Third fibre
Black Polyurethane (PU)	T-shirt / Polo / Top	Placed logo		Cotton	Cotton	Cotton
Blue Polyurethane (PU)	Shirt / Blouse	Allover logo		Linen/Hemp	Linen/Hemp	Linen/Hemp
Green	Jacket	No		Wool/ Cashmere/Mohair	Wool/ Cashmere/Mohair	Wool/ Cashmere/Mohair
Purple	Outerwear			Silk	Silk	Silk
Red	Dress / Jumpsuit			Viscose/Modal/ Lyocell/Bamboo/Rayon	Viscose/Modal/ Lyocell/wBamboo/ Rayon	Viscose/Modal/ Lyocell/Bamboo/Rayon
Orange	Trousers			Polyester	Polyester	Polyester
Yellow	Shorts / Skirt			Polyamide/Nylon	Polyamide/Nylon	Polyamide/Nylon
White	Underwear / Nightwear / Swimwear			Acrylic	Acrylic	Acrylic
Brown	Accessories			Polypropylene (PP)	Polypropylene (PP)	Polypropylene (PP)
Gray				Acetate	Acetate	Acetate
Pink				Down	Down	Down
Multicolour				Leather	Leather	Leather
Beige/Cream				Polyurethane (PU)	Polyurethane (PU)	Polyurethane (PU)
				NA	NA	NA

- On condition:

  - Wearable condition: The garment could be worn immediately, it does not have any visible issue.

  - Small stain: The stain is smaller than a $1 coin.

  - Big stain: The stain is bigger than a $1 coin or there are many small stains covering a large area of the garment.

  - Small hole: The hole is smaller than a $1 coin.

  - Big hole: The hole is bigger than a $1 coin or or there are many small holes covering a large area of the garment.

Data quality

We assume the possibility for data to contain human errors. Some item details are factually observable (e.g. weight) but others rely on human expertise to catalogue the items correctly (e.g. garment type, condition).

We assume the possibility for data to be biased, when comparing the overall non-wearable clothes disposed of in Hong Kong. Since the items are received by Redress through the Takeback programme,it is expected that people avoid giving:

- Items that are unused: high quality clothing that, despite not being regularly used, are not given due to personal attachment.

- Very low quality or damaged items: clothing that appear severely damaged or which have inherent low quality, leading potential givers to consider the clothes are not fit to be received by Redress and thus landfilled directly.

- Underwear, socks, swimwear etc: intimate clothing leading potential givers to consider the clothes are not fit to be received by Redress and thus landfilled directly.

Due to the high amount of clothing processed and to speed up the time for collecting the data, there is no unique identifier (UID) number available for most of the items. Nonetheless, to ensure we can backtrack the whole experiment lifecycle and to be able to match real-life clothes to their corresponding details in the database, we assigned a sample ID to 79 items, corresponding to 4.74% of the total items. The items with UID enabled us to test and confirm the validity of the decision framework by comparing the decision made by the framework (based on data) against an expert's decision (based on visual inspection of the item).

Elastane/ Spandex / Lycra content (%)	Condition
	Big stain
	Small stain
	Small hole
	Big hole
	Overly worn out
	Broken zip / missing button
	Wearable condition

Data analysis

Framework rule set

A framework of rules was built to evaluate each item in a systematic way with the aim to determine the highest value material recovery method for each item.

Textile material recovery definitions
from the highest to the lowest recovery value

1. **Reconstruction (also known as remanufacturing):** This consists of turning the original garment into a new design, without transforming it back to its fibre state. For example, an old pair of denim jeans could be reconstructed into a denim jacket.

2. **Fibre-to-Fibre (F2F) Recycling for the apparel industry:** This consists of turning the garment into fibres, and then into yarns and fabrics of high quality. By doing so, it can make new garments.

3. **Fibre-to-Fibre (F2F) Recycling for the furnishing industry:** This consists of turning the garment into fibres, and then into yarns and fabrics of low quality. By doing so, it can make new products for the furnishing industry, for example carpets and rugs

4. **Downcycling:** This consists of reusing or shredding the materials of the products so that it can be transformed into lower-value products that can be used in other industrial sectors. Downcycling ensures a second life by transforming textile waste into items like insulation, single use wipes, filling for mattresses or car seats, etc.

Value (low 4 to high 1)	Outcome	Color
4	Downcycling	Any
1	Reconstruction	Any
1	Reconstruction	Any
MONO FIBRES, NO ELASTANE, SINGLE COLOR		
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
COTTON-POLYESTER, ELASTANE <3%, SINGLE COLOR		
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
CELLULOSIC BLEND, NO ELASTANE, SINGLE COLOR		
2	Fibre-to-fibre recycling for apparel	Any except Multicolour
ANY BLEND, ELASTANE <3%, SINGLE COLOR		
3	Fibre-to-fibre recycling for apparel	Any except Multicolour

This set of rules was then coded to automatise the decision making.

- Rule0-Downcycling: Default, no rule has triggered;

- Rule1-Downcycling: Downcycle if under-/night-swimwear;

- Rule2-Reconstruction: Reconstruction if Placed or Allover Logo and decent condition;

- Rule3-Reconstruction: Reconstruction if no logo and decent condition;

- Rule4-Downcycling: Downcycle if care label not available;

Garment type	Weight (g)	Main Fibre content	Secondary fibre	Third fibre	Elastane/ Spandex / Lycra content	Condition
Any / All underwear / Nightwear	Any	Any	Any	Any	Any	Any
Any	Any	Any	Any	Any	Any	Small hole / Small stain Broken zip / missing button Wearable condition
Any	Any	Any	Any	Any	Any	Small hole / Small stain Broken zip / missing button
Any	Any	Wool / Cashmere / Mohair	No	No	0	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Polyester	No	No	0	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Polyamide / Nylon	No	No	0	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Silk	No	No	0	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Cotton	Polyester	No	<3	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Polyester	Cotton	No	<3	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Cotton / Line / Hemp / Viscose / Modal / Lyocell / Bamboo/Rayon	No Cotton / Linen / Hemp /Viscose / Modal / Lyocell / Bamboo / Rayon	No Cotton / Linen / Hemp / Viscose / Modal / Lyocell / Bamboo/ Rayon	0	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button
Any	Any	Any	Any	Any	<3	Small hole / Small stain Big hole / Overly worn out Broken zip / missing button

- Rule5-F2F for Apparel: Mono fibres, no elastane, single colour;

- Rule6-F2F for Apparel: Cotton-polyester mix, elastane <3%, single colour;

- Rule7-F2F for Apparel: Cellulosic blend, no elastane, single colour;

- Rule8-F2F for Furnishing: Any blend, Elastane <3%, Single colour.

Results

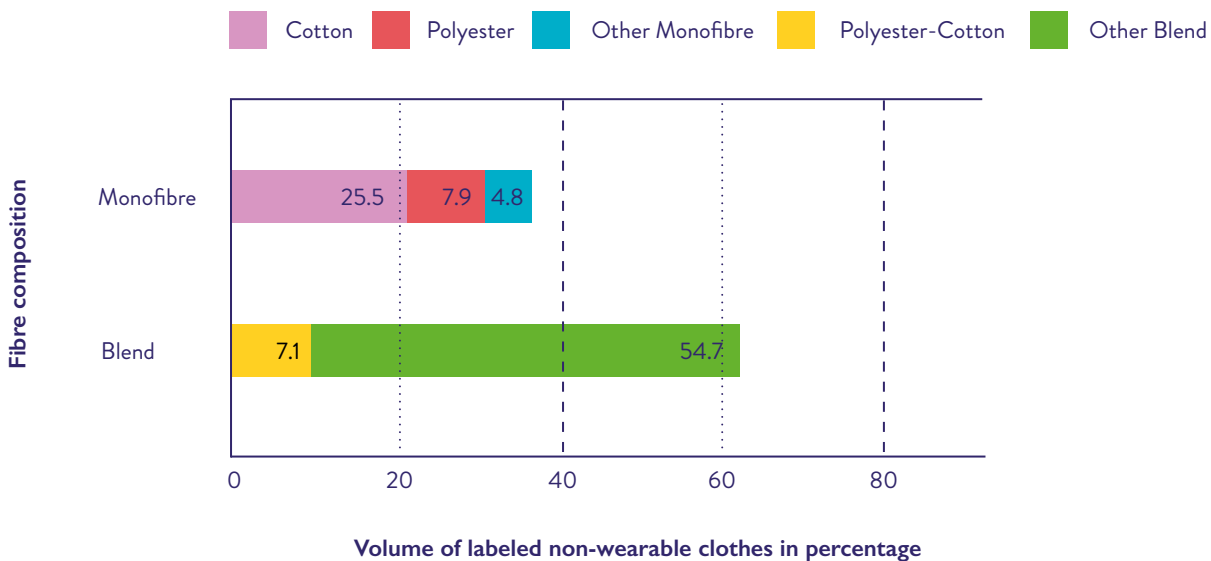|	Downcycling	F2F for Furnishing	F2F for Apparel	Reconstruction
Current Takeback Programme	10,250 kg	0 kg	0 kg	0 kg
Potential recovery opportunity [43] revealed through the framework analysis	8,389 kg	64 kg	1091 kg	706 kg
	Reduction of 1,861 kg	Increase of 64 kg	Increase of 1091 kg	Increase of 706 kg
	-19%	+1%	+11%	+7%

Decision

Total Weight of items per Decision
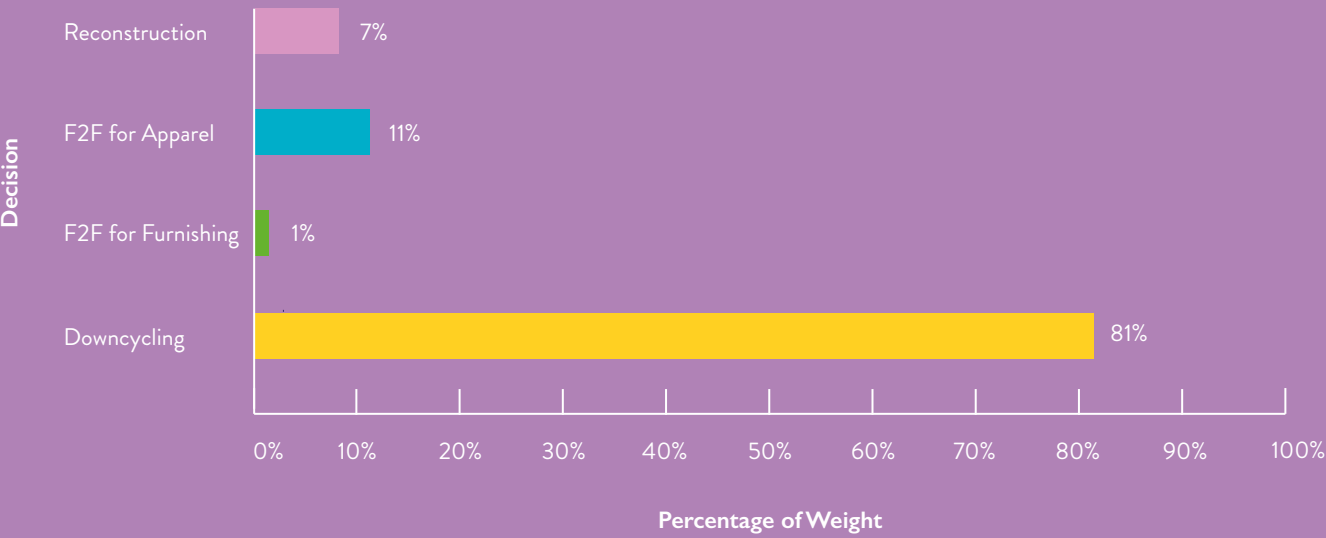
• The downcycling portion could be reduced by 19% to contribute to other material recovery channels of higher value: in particular, fibre-to-fibre recycling for apparel could divert 11% of the stock currently going to downcycling, and reconstruction could divert at least 7%.

Fibre composition analysis

Legend: Cotton | Polyester | Other Monofibre | Polyester-Cotton | Other Blend

Fibre composition	Values
Monofibre	25.5 / 7.9 / 4.8
Blend	7.1 / 54.7

**Volume of labeled non-wearable clothes in percentage**

- Fibre-to-fibre recycling potential, based on the volume of non-wearable clothes that had clear fibre composition labels:

  - About two-thirds were blended compositions. Most of these blends are not commonly processed by the industry, apart from 7.1% of polyester-cotton blend that could find its way to fibre-to-fibre recycling.

  - Over a quarter was 100% cotton, which is significant as it has the most potential for fibre-to-fibre recycling.
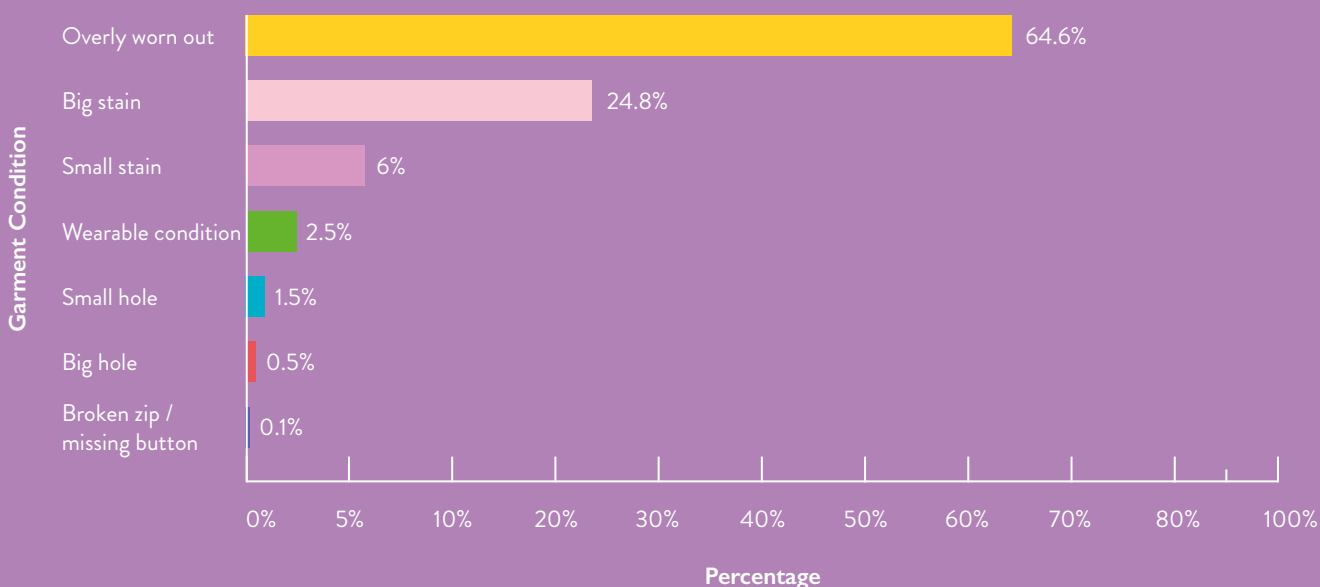
Top Colour

Amount of items per Top Colour

10 Colours outside of Top4 are aggregated into 'Other' category

Top Colour	Percentage
Multicolour	32.5%
White	14%
Blue	11.1%
Black	10.7%
Other	31.7%

Percentage
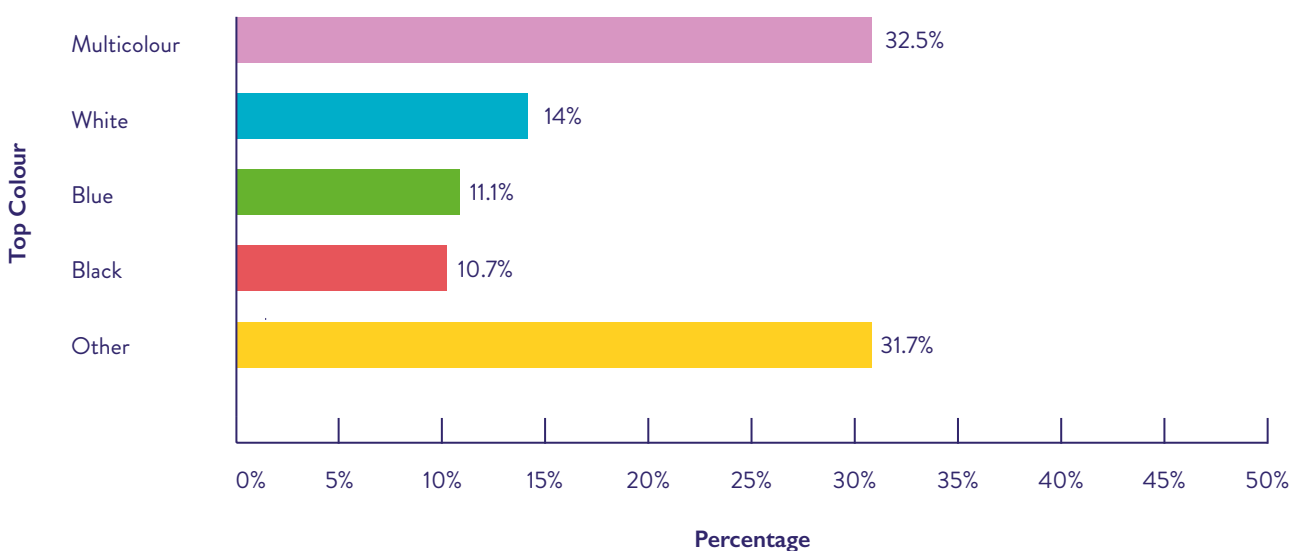
- Almost two-thirds of the items were multicolour and 'unusual' colours, while the last third was 'standard' colours white (14%), black (11%) and blue (11%). This range of colour adds some complexity for recycling as current fibre-to-fibre recycling relies heavily on colour sorting, and buyers of recycled fibres tend to buy 'standard' colours over 'unusual' ones.

Condition

Amount of items per Condition

Garment Condition (y-axis)

- Overly worn out — 64.6%
- Big stain — 24.8%
- Small stain — 6%
- Wearable condition — 2.5%
- Small hole — 1.5%
- Big hole — 0.5%
- Broken zip / missing button — 0.1%
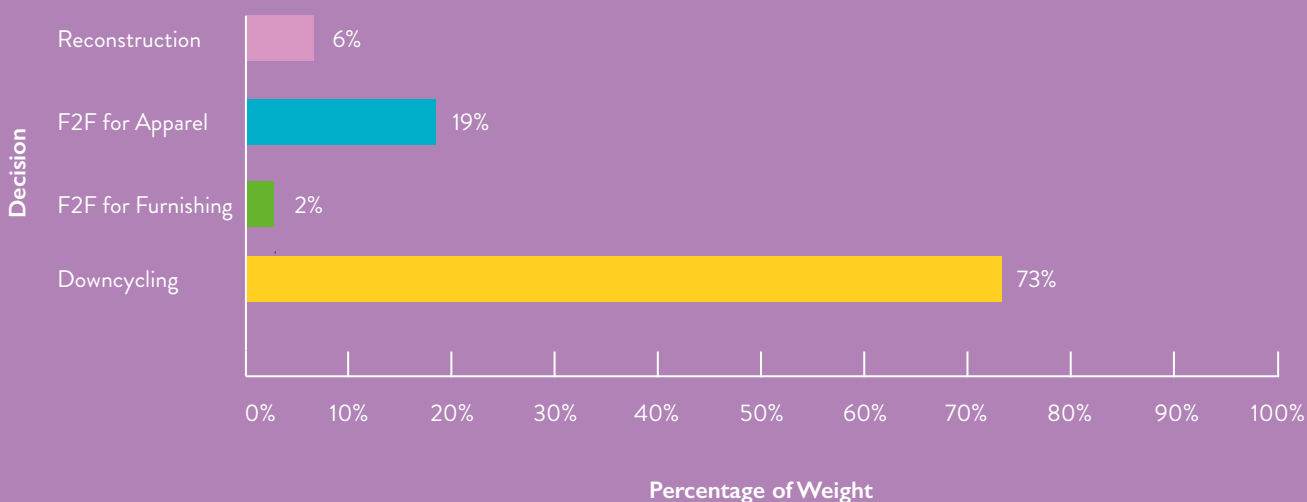
Percentage (x-axis: 0% to 100%)

- The two main causes for deeming a garment non-wearable were that the item was overly worn out or that it had noticeable stains.

When looking at these results, it is important to note that almost half (46%) of non-wearable clothes were missing a composition label, which led the decision making to be, by default, downcycling, or reconstruction if the condition of the clothing allowed. Therefore, if the composition was known - either thanks to better labeling, or composition identification technologies - the recovery methods results with fibre-to-fibre recycling could have been even more encouraging, as the results show below.

Decision

Total Weight of items per Decision

Decision (y-axis)

- Reconstruction — 6%
- F2F for Apparel — 19%
- F2F for Furnishing — 2%
- Downcycling — 73%

Percentage of Weight (x-axis: 0% to 100%)

Here the downcycling portion shows the potential to be reduced by a further 8% (from 81% to 73%) to contribute to fibre-to-fibre recycling for apparel (from 11% to 19%).

Data analysis based on the same data set, but excluding all items with unknown composition.

Acknowledgements

Redress is grateful to all those who contributed to the development of this white paper. We wish to acknowledge the organisations and individuals who offered valuable insights. Please note that contributions to this study, or any reference to a third-party organisation within it, do not imply a formal partnership or agency relationship with Redress, nor an endorsement of the report's conclusions or recommendations by these contributors.

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Building a circular economy: Redress clothing resale

Endnotes

[1] Environmental Protection Department, HKSAR. 2024. Monitoring of Solid Waste in Hong Kong: Waste Statistics for 2023

[2] Environmental Protection Department, HKSAR. 2024. Monitoring of Solid Waste in Hong Kong: Waste Statistics for 2023

[3] Estimation by Redress, based on a 23kg suitcase

[4] Environmental Protection Department, HKSAR. 2024. Monitoring of Solid Waste in Hong Kong: Waste Statistics for 2023

[5] Redress & Edelman, 2020, Clothing Consumption, Usage and Disposal Habits in Hong Kong

[6] HKFP June 2024, Explainer: How big is Hong Kong's waste problem, and how much does it recycle?

[7] Ellen MacArthur Foundation (2017), A New Textiles Economy: Redesigning Fashion's Future

[8] Redress & Edelman, 2020, Clothing Consumption, Usage and Disposal Habits in Hong Kong

[9] Environmental Protection Department, HKSAR. 2024. Monitoring of Solid Waste in Hong Kong: Waste Statistics for 2023

[10] Downcycling consists of reusing or shredding the materials so that it can be transformed into lower-value products that can be used in other industrial sectors. Downcycling ensures a second life by transforming textile waste into items like insulation, single use wipes, filling for mattresses, car seats, etc

[11] Data extrapolated for a year, based on the data capture for October 2024. See Appendix for the full calculation

[12] Redress organised and facilitated a series of 2 workshops in August and September 2024, refer to the 'Acknowledgement' section of this report for more information on the stakeholders present

[13] Based on the outcome of the workshops held by Redress in August and September 2024, and other programs run by Redress

[14] https://www.fibersort.com/en/

[15] https://www.wieland.nl/en/fibersort-ready-to-start-valorizing-global-textile-waste-sorting-900-kgs-of-post-consumer-textiles-per-hour-enabling-a-closed-textiles-loop/

[16] https://www.hkrita.com/en/our-innovation-tech/projects/smart-garment-sorting-for-recycling

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