SUSTAINABLE CLOTHING ACTION PLAN 2020 COMMITMENT: PROGRESS REPORT

Update on the progress of signatories to the Sustainable Clothing Action Plan, between 2012 and 2018.

December 2019

About WRAP

WRAP is a not-for-profit, working with governments, businesses and citizens to create a world in which we use resources sustainably. Our experts generate the evidence-based solutions we need to protect the environment, build stronger economies and support more sustainable societies. Our impact spans the entire life cycle of the food we eat, the clothes we wear and the products we buy, from production to consumption and beyond.

This document provides the supporting evidence and analysis for reporting on progress against SCAP targets by signatories

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Executive summary

The Sustainable Clothing Action Plan brings together organisations from across the clothing industry; including brands and retailers, charities, and textile recyclers; to reduce the environmental impacts of clothing consumed in the UK.

This report reviews the actions taken by those signatories under the Sustainable Clothing Action Plan 2020 (SCAP). It shows how signatories are performing against the SCAP targets to achieve reductions in carbon, water and waste, comparing potential savings since 2012. This report also provides the latest figures on total clothing waste going to landfill and incineration in the UK.

The SCAP targets are to achieve, between 2012 and 2020:

- 15% reduction in the carbon and water footprints of clothing placed on the market in the UK by SCAP retailers and brands, measured per tonne of garment sales;
- 3.5% reduction in waste arising over the product life cycle across all SCAP signatories; and
- 15% reduction in clothing waste going to landfill and incineration (energy from waste) in the UK

Progress towards the targets is the result of a combination of effects, while the results of the improvement actions taken directly by signatories are split out to help understand the extent of their contributions to reducing environmental impact.

Results

The headline results show that SCAP has been successful in reducing carbon, water, and waste since 2012. The amount of clothing waste going to landfill and incineration has also reduced compared to the baseline year, although the quantity has increased since 2015.

SCAP headline results 2012 - 2018

Indicators	Targets	2012-2016	2012-2017	2012-2018
		% reduction per tonne reported for each year		
Carbon footprint (t CO_2e per tonne)	-15%	-10.6	-11.9	-13.4
Water footprint (m^3 per tonne)	-15%	-13.5	-17.7	-18.1
Waste footprint (tonnes per tonne)	-3.5%	-0.8	-1.1	-1.4
Clothing in household residual waste (t)	-15%	-14%	*Not updated*	-4%

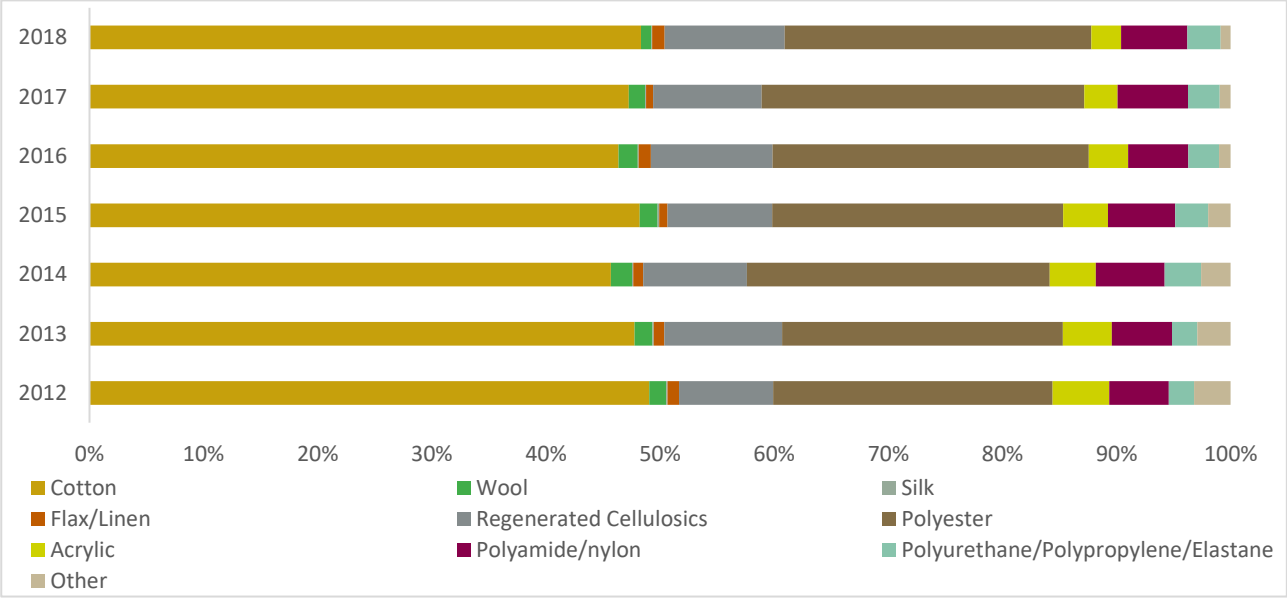
SCAP 2020 progress 2012 - 2018

The results show that SCAP signatories' water footprint (per tonne of clothing) has reduced by 18.1% compared to 2012, already exceeding the water target. The carbon footprint has reduced by 13.4% compared to 2012 and is on track to meet the 2020 target. Challenges remain however, with achieving the waste targets and more work needs to be done in this area.

Fibre composition

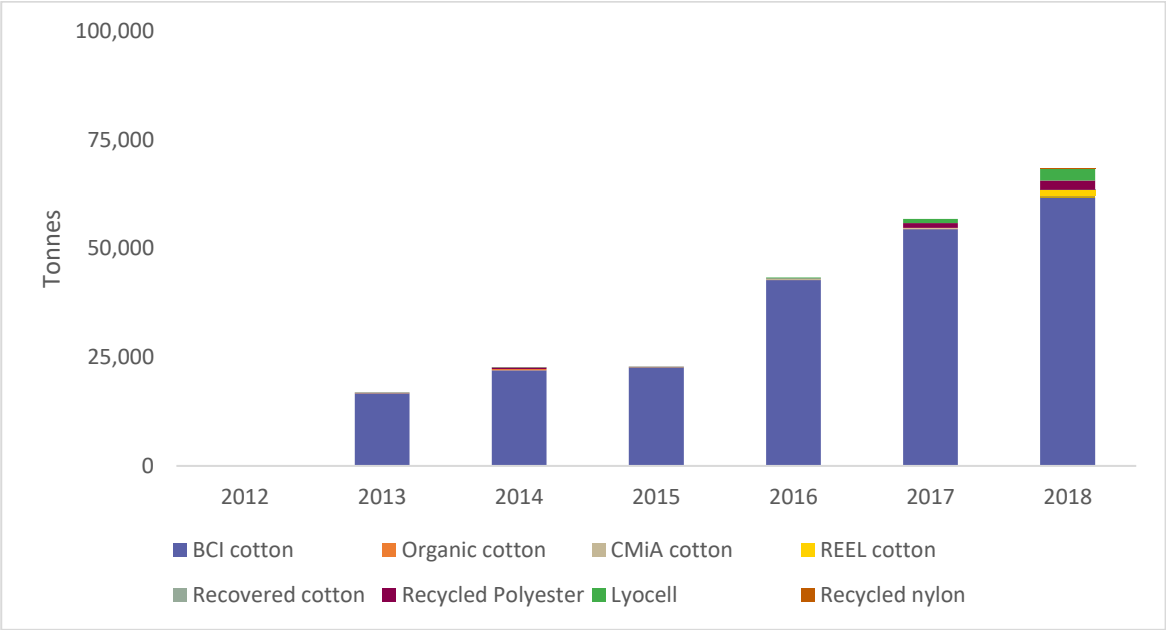
Fibre composition is a key driver which affects carbon and water footprints over time. Tracking fibre composition is therefore an important part of the SCAP reporting process. Overall, fibre composition has changed little between 2012 and 2018. Change in fibre use is not consistent from one retailer to another over time.

SCAP fibre composition 2012 - 2018



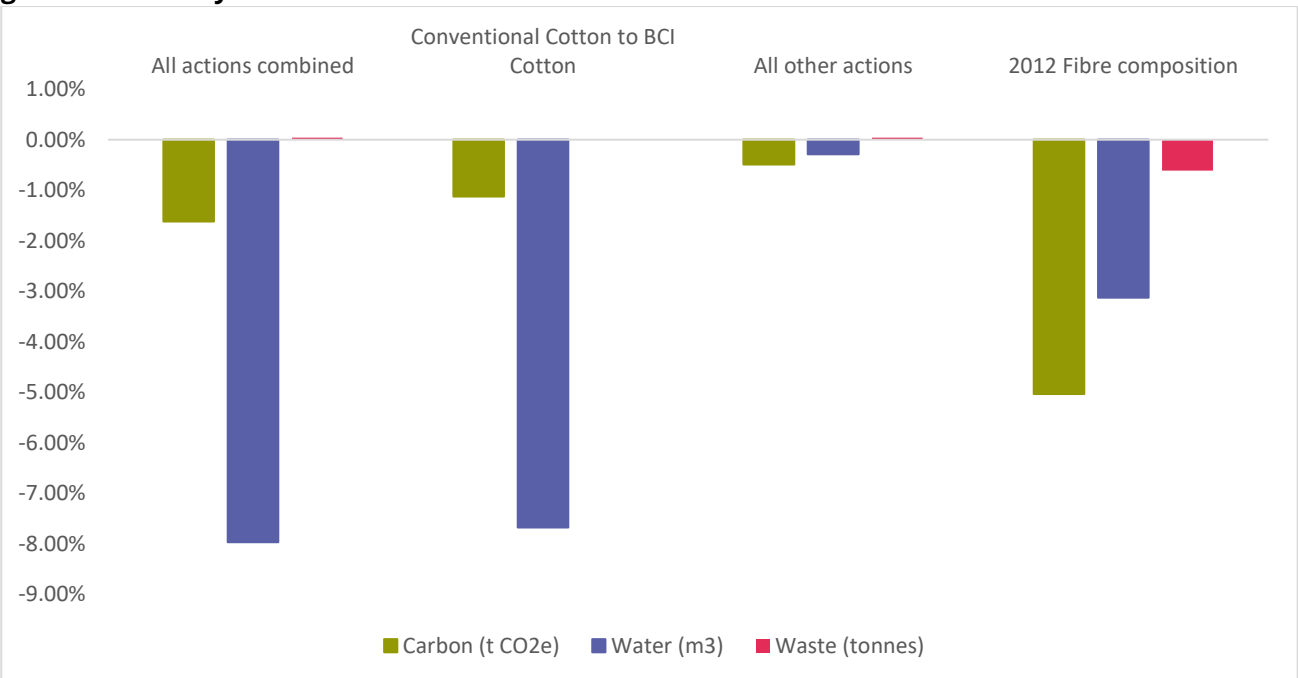
Use of improved fibres by SCAP retailers, 2012 - 2018

SCAP 2020 progress 2012 - 2018



SCAP signatories have been successful in reducing their impacts by switching to more sustainable fibres. The quantity of improved fibres being used by SCAP retailers has increased significantly over time, predominantly with a switch to Better Cotton Initiative (BCI) cotton. Other improved fibres that appear in small quantities include recycled polyester and lyocell. Where only small quantities of improved fibres have so far replaced conventionally produced fibres, the impact in terms of reducing footprints also remains much less.

Contribution analysis of the effects of improvement actions and changes to the fibre mix of garments sold by SCAP retailers



A contribution analysis was carried out to determine which changes in fibres had the greatest effect. We found that the change to BCI cotton has had most impact on the water footprint, whilst changes to the fibre mix since 2012 have had the most impact on the carbon and waste footprint.

By reviewing the combined footprints of SCAP retailers, after improvement actions have been taken, we can see the highest environmental impacts come from:

- Cotton and polyester, since these are the most common fibre types used
- Impact spread across life cycle stages from raw materials production to factory processing and clothing in use (high carbon impact)
- Raw materials, especially cotton cultivation (high water impact)
- The method of disposal at the end of the clothing's life (high waste impact)

These areas will be a key focus for SCAP signatories during the remainder of the 2020 Commitment, in order to maximise the potential of reaching the targets.

Conclusions

Water target – met and exceeded

This review of SCAP progress to date shows that the water target has been met and exceeded, with a reduction of 18.1%. The increased use of BCI cotton by SCAP retailer signatories has been the highest contribution in achieving this target.

Carbon target – on track

At the current rate of progress (13.4% reduction compared to 2012), the carbon target will also be met before 2020. To date, changes in the proportions of different fibres used in clothing; increased use of sustainable forms of cotton; changes to the background assumptions in the Footprint Calculator (particularly the electricity grid mix); and changes in citizens' laundry behaviour, have all contributed to the reduction in carbon used by signatories.

Signatories will be focusing on a range of these actions, targeting stages along the whole life cycle of clothing, to help meet this target by 2020.

Waste across the product life cycle – not met

The reduction in the waste footprint is low, at 1.4% against a target of 3.5%. This is measured (by retailers) as a reduction in supply chain waste which is offset by increased recycling and reuse in the UK, partly by SCAP re-use and recycling signatories. The reasons for this lack of progress on waste are difficult to track over time. It is unlikely that the waste footprint target will be met by 2020.

Waste to landfill – not met

SCAP 2020 progress 2012 - 2018

Clothing disposed of by UK households and sent to landfill and incineration (creating energy from waste) has reduced by 4% compared to 2012. Given the average life of clothing is 3.3 years, this may reflect higher consumption levels of clothing bought three years prior, in 2014. Nevertheless, there is still work to be done to reduce this figure and progress towards the target. During 2020, this will be a key focus area for SCAP, with campaigns such as Donation Generation, encouraging citizens to re-use or recycle their clothing, instead of sending it to landfill.

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Acknowledgements

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1.0 Introduction

This report has been prepared at a time when clothing and the fashion industry has been facing unprecedented scrutiny and calls to make the sector sustainable are greater than they have ever been. The Environment Audit Committee (EAC) report, 'Fixing Fashion', released in 2019, highlighted issues with the sustainability of the fashion industry. The EAC report also referred to the role of the Sustainable Clothing Action Plan (SCAP) in addressing these issues, supporting signatories to use the best available techniques to minimise water and carbon footprints in clothing production but raised the challenges presented by growing consumption to reducing overall harm to the environment as well as post-consumer waste.

This SCAP progress report reviews actions of signatories which have affected progress towards targets. The actions taken by signatories are disaggregated from unintentional effects. Progress towards the targets is the combined effect of all actions and other effects. A contribution analysis demonstrates how much of the progress towards targets is a result of signatories' actions and how much is incidental. A thorough quality assurance process is used to check that data are robust. Each of the reporting signatories receives feedback on the footprints of clothing that they sell / handle, how to improve reporting, and areas to focus on to improve their environmental footprints. Their participation in the review process both individually and via SCAP's Metrics Working Group is a critical part of checking accuracy in reporting and interpreting the results.

SCAP reporting takes place annually. The voluntary agreement runs until 2020 and the final results will reflect on the environmental footprints of clothing sold in that year compared to the baseline year. The final report will be prepared in 2021 following the final year of implementation and data collection.

1.1 Objectives of the SCAP agreement

SCAP brings signatories together including retailers, charity retailers and textile recyclers to reduce the impacts of clothing consumed in the UK. WRAP organises the Steering Group and working groups to provide governance, and helps signatories to the agreement to identify the actions they can take to reduce their environmental footprint, set objectives and work towards them. Collaborative work ensures that individual organisations can work together to learn from each other and share best practice.

Signatories agree to action in seven specific areas when they sign the agreement. Actions support reduction in the carbon, water, and waste footprints of clothing.

SCAP action areas:

1. Use a common assessment tool to measure our baseline position and track changes in footprint over time

2. Reduce the environmental footprint of clothing through fibre and fabric selection

3. Over the longer term, work with our supply chain partners to reduce the environmental footprint of their processes

4. Extend the useful life of clothes and reduce the environmental impact of clothing in use through our product design and services

5. Develop effective messaging to influence key consumer behaviours which will reduce the environmental footprint of clothing

6. Increase reuse and recycling to recover maximum value from used clothing

7. Develop actions that help keep clothes out of landfill

1.2 Targets

The SCAP targets are to achieve, between 2012 and 2020

- 15% reductions in the carbon and water footprints of clothing placed on the market in the UK by SCAP retailers and brands, measured per tonne of garment sales;
- 3.5% reduction in waste arising over the product life cycle across SCAP signatories; and
- 15% reduction in clothing waste going to landfill and incineration in the UK.

The footprint targets are normalised to account for changes over time in levels of consumption. Results are presented comparing progress against the targets per tonne of garments sold each year by SCAP signatories since 2012. Footprint data are also provided in absolute terms to provide context.

The target to reduce clothing waste to landfill and incineration in the UK uses national data to establish changes in municipal residual waste arisings of clothing based on waste composition analyses. The baseline year is also 2012 for this target but the targeted percentage change is taken to be based on absolute changes in tonnage figures rather than normalised data (per tonne of sales). One reason for focusing on absolute quantities of clothing in residual waste is that the local authorities and resource management organisations responsible for handling the collected waste have very little involvement with clothing consumption.

1.3 Outline

The information that follows includes description of the methodology, the reporting process and an outline of the footprint calculations used for SCAP retailers and brands, and for recyclers and reprocessors. The methodology is followed by a description of the research carried out in the last year to gather and review data. The three footprint results as a whole are then presented, followed by a breakdown of the fibre composition and a closer look at the carbon, water, and waste footprint data, with some analysis as to the causes of the changes. The improvement actions taken are discussed and this is followed by a contribution analysis and heatmapping the life cycle stages with the highest carbon, water, and waste impacts. Finally, the key findings of the report are summed up in the conclusion, highlighting SCAP's progress and providing advice on how to achieve further improvement.

2.0 Methodology

2.1 Footprinting methodology

The SCAP Footprint Calculator is designed to enable:

- participants in SCAP 2020 to estimate product footprints for clothing as carbon, water and waste impacts in a consistent way, to plan and quantify the potential savings from improvement actions, and to quantify the savings directly attributable to actions they have taken (relative to a baseline year);
- WRAP to report the overall carbon, water and waste impacts and savings associated with SCAP 2020 delivery (collated across all signatories); and
- retailers and recycling and reuse organisations to model life cycle footprints of scenarios for improvements beyond SCAP. For example, the calculator is used by the European Clothing Action Plan, and includes scenarios for new and emerging technologies.

SCAP targets include improvements in the carbon, water and waste footprints of signatories. In each case, a life cycle assessment (LCA) approach is followed, and cradle-to-grave footprints are provided. Carbon, water, and waste footprints of clothing are calculated during four life cycle stages:

- Fibre production
- Processing
- Use
- End of Life

The general principles of ISO 14040 are followed, with further reference to the GHG Protocol, PAS 2050 and the Water Footprint Network Global Water Footprinting Method.

The functional unit used for the life cycle assessment calculations carried out by the footprint calculator is:

"The function of dressing people in garments purchased in the calendar year of assessment for the average lifetime of active use of those garments in the country in which they were purchased."

Since the last year of reporting, changes to the methodology for reporting the impact of some fibres have been introduced, and new improvement actions have been included in the calculator. The improvement actions are listed with a short description in Section 2.5. Other updates are summarised here. The SCAP footprint calculator in use for this report is version 2.10 for reports received covering 2018. Footprint reports for 2015-2017 use version 2.9w for this report, while footprint reports for 2012-2014 have been calculated using version 2.8w with 2.5 impact factors.

- Regionalisation has been introduced to the SCAP calculator as it has been given the functionality of the reporting tool for the European Clothing Action Plan. Market mixes for other countries are available, enabling input of variations for the use phase, and

the application of electricity grid mixes and residual waste options as they apply in the countries sold to. For SCAP, the regionalisation functionality is useful additional functionality.

- New data for wool production, silk production, and nylon production, were input. Further new data for cotton production (weaving and knitting) were considered but not implemented as they would have affected the baseline and further consideration was required. The changes to wool production were considered important enough to make adjustments to previous years of reporting.

- New improvement actions were added for recycled cotton, REEL cotton, and spin dyeing of viscose.

This report makes comparisons between the current environmental footprints and the SCAP 2012 baseline. The change over time is reported as the rate of progress against the targets.

External factors that have affected the results have been separated out in the results so that it is possible to see the improvements directly influenced by SCAP and separately account for the effects of other factors. External factors are variable and changes in fashion, energy sources used, market prices which drive garment and fibre sourcing strategies, cannot always be separated from each other in the analysis, but are considered separately from improvement actions taken.

2.2 Data collection, analysis and quality assurance

The data for the SCAP reports is collected by the individual SCAP signatories (both retailers and recycling and reuse. This data is then either passed on to WRAP via a secure channel to be entered into the SCAP footprint calculator, or the data is entered into the calculator by the signatory before being submitted to WRAP. Quality assurance is done by WRAP, who analyse the reports created from the data signatories have gathered, review the reports for accuracy, and use this to create individual reports with key themes and messages for the retailers to help them progress towards the SCAP targets.

2.3 Waste footprint methodology

For the 2018 SCAP report a new method for the calculation of the waste footprint has been applied, this new method will allow the waste reduction from the retailer signatories to be combined with the waste reduction from the recycling and reuse signatories.

The waste footprint for the retailer signatories is calculated by the SCAP footprint calculator alongside the carbon and water footprints. The overall quantity of waste arising from garments in the UK is also affected by the actions of recycling and reuse signatories, who collect from the general public and from other organisations, sort, and sell garments either in the UK or overseas. Some of the organisations sell garments to each other for further sorting and so their reports cannot be combined. To avoid the problem of double counting only reports from charity retailers are included in the calculation of the recycling and reuse signatories waste footprint.

Charity recyclers reporting to SCAP accounted for over 18,500 tonnes of garments handled in 2018. This excludes clothing received from SCAP retail signatories which is removed from the total as it has already been claimed in the retailer footprint. This total compares to total incoming clothing of over 98,000 tonnes across all SCAP reuse and recycling organisations, although this includes double-counting so the real total is less.

- The charity retailer submissions are separated from the other recycling and reuse signatories
- Then clothing received from SCAP retailer signatories is removed
- The total clothing received by the charity retailers is split by end destination
- The amount that goes to direct sale in the UK is summed and calculated as a percentage of the total received, this is done for each year 2015-2018
- The percentage that does not go to direct reuse in the UK for 2016-2018 is compared to the 2015 baseline (see table 3)
- A weighting factor is calculated for the 2018 data, to represent the impact the recycling and reuse signatories have when compared to the total sales of SCAP retailer, using the formula
  Clothing received by charity retailer/ SCAP fibre total = weighting factor (0.0588)
- This weighting factor is applied to the Implied waste reduction per tonne of clothing for 2018 by multiplication
- The weighted implied waste reduction per tonne of clothing is summed with the reduction in waste footprint calculated for the retailer signatories from their combined report data
- The combined total is presented as the total SCAP waste footprint reduction

2.4 Clothing in household residual waste

The methodology used for estimating the quantity of clothing in municipal residual waste is similar to that used in previous reports on the clothing to landfill and incineration target, to facilitate comparison. More information is provided in the report '*National Household Waste Composition 2017' (WRAP, 2019)*[1].

To summarise the methodology, a sample of waste compositional analyses (WCAs) for local authority collected waste was collated, using analyses that had been carried out between April 2016 and September 2018.

As detailed in WRAP, 2019, a category list was used, with tier 1, tier 2 and tier 3 categories for textiles, shown in Table 1. Tier 1 represents the main primary categories, for which most waste composition analyses included data. Tier 3 represents a breakdown down into subfractions to the extent that a sufficient proportion of the collated compositional studies included data. The

[1] WRAP, 2019, National Household Waste Composition 2017, unpublished at the time of writing.

categories were broadly based on the England 2010/11 national compositional estimates category list, in order to enable comparison with previous estimates. The final column of Table 1 provides the categorisation used in 2015. All textiles were subdivided into clothing, shoes, accessories, and there were two groups for non-clothing which included flat items (such as curtains and towels) and filled items (such as pillows and duvets). Where specified, mattresses were treated as out of scope.

Table 1 Textiles waste categories analysed for the 2017 household waste composition study

Tier 1	Tier 2	Tier 3	2015 categories
Textiles	Clothing, shoes, bags and belts	Clothing	Clothing textiles
		Shoes, bags and belts	Shoes
	Non-clothing textiles	Carpet and underlay	Accessories
		Other non-clothing textiles	Non-clothing '2D'
			Non-clothing '3D'

2.5 Improvement actions

SCAP retailers are asked to report improvement actions that they have taken in the last year, when they enter data into the footprint calculator. The improvement actions are modelled as a switch away from a conventional production to use more sustainable fibres, and production techniques, and to replace linear production and use with recycling and reuse so that clothing and textile fibres and whole garments remain in circulation for as long as possible.

Table 2 Reportable actions in the SCAP footprint calculator

Reportable improvement actions	Type of action
Conventional cotton to BCI cotton	Fibre substitution
Conventional cotton to organic cotton	Fibre substitution
Conventional cotton to CMiA	Fibre substitution
Conventional cotton to REEL cotton*	Fibre substitution
Conventional to recycled cotton*	Fibre substitution
Virgin to recycled polyester	Fibre substitution
Viscose to lyocell	Fibre substitution
Reuse in UK of pre-owned garments	Reuse
Hire and repair services dematerialise retail	Reuse
Virgin to recycled polyamide / nylon	Fibre substitution
Conventional dyeing to dope dyeing synthetics	Efficient production
Conventional dyeing to CPB of natural fibres	Efficient production
Conventional dyeing to spin dyeing of viscose*	Efficient production
An increase in collection for reuse / recycling	Reuse

*New actions in the footprint calculator in 2018

Fibre substitution actions replace conventionally produced textile fibre with fibres produced in a way that seeks to reduce the environmental impacts associated with relevant processes. Production of organic cotton, for example, avoids use of synthetic pesticides, herbicides and fungicides and there is an associated reduction in water use, water pollution, and overall greenhouse gas emissions. Recycled fibres are also included as fibre substitution, as the use of virgin polymers is replaced by either chemically or mechanically recycled fibres. The life cycle assessment data for recycled cotton only uses a closed loop process, while recycled polyester and nylon use recovered materials such as plastic bottles, fishing nets and so on in the recycling process.

Efficient production actions introduce more efficient means of producing yarn, fabric, and garments by improving or even removing factory processes. More efficient production

techniques can require use of new technologies. So far three improved dyeing techniques have been included in the footprint calculator as improvement actions as these are reasonably commonly used.

Reuse actions focus on the end of the first primary use phase of garments (when a consumer first wants to get rid of a garment) and capturing these so that they can go into another phase of use. Reuse actions may also include some capture of post-consumer garments from disposal for lower grade recycling. Three reportable improvement actions are offered currently. Savings depend on the displacement of a proportion of sales of new garments which brings about reduction in carbon, water, and waste in the supply chain.

2.6 Scope of the review

As this is a midterm report, and there are two further years left of reporting on the agreement, the review continues to include recommendations for implementation, although at this stage there is little time left to influence strategic buying decisions within some of the large retailers. It does not include a comparison of performance by non-SCAP signatories with SCAP signatories. This approach to analysing impact of the programme will be included in the final evaluation.

3.0 Reporting process

3.1 SCAP reporting process

3.1.1 Report from SCAP retailers and brands

All eleven of the current SCAP retailer signatories completed reports in 2018, one of these reports was excluded from the overall SCAP results as it is the first report and has no baseline to be compared to, all the other reports are included

3.1.2 Report from SCAP recycling and reuse organisations

Ten of the twenty-four signatories who are recycling and reuse organisations provided reports to SCAP. Two of these are not included in the overall results as the reports have no baseline, Additionally the report for one signatory has been created using the same data as their 2017 report, assuming the same incoming clothing and end destinations with this run through the latest version of the footprint calculator to create the 2018 report. Due to the data limitation 2015 instead of 2012 is used as the baseline year for recycling and reuse organisations. A total of around 98,000 tonnes of clothing was reported with 18,500 tonnes reported by charity retailers.

3.3 SCAP data review and quality assurance

3.3.1 SCAP data review for retailers and brands

- WRAP provide quality assurance and during the review maintained a log of queries and comments, and the ways these were resolved. Interviews with signatories were carried out to explain individual footprint data, facilitate checking and gain feedback on results.
- Meetings in 2019 were organised alongside meetings to discuss implementation, providing information to inform action planning. Results of individual scenario analysis were presented and discussed and heatmaps used to encourage prioritisation of actions to the completion of the agreement.
- Checklists were completed by signatories describing the data provided, actions taken, and providing additional information to back up claims and provide for consistency in reporting from year to year.
- The review provides for checks on accuracy of the data input, the calculations performed, the overall results, and supporting analysis and interpretation of the results. During the second stage of the review, the reports were compiled to estimate the overall change in footprints for the agreement as a whole and final checks were carried out with the compiled results. Different aspects of the data were tested to provide for richer analysis and feedback to signatories about strategies that have produced better results.

3.3.2 SCAP data review for recycling and reuse organisations

- Footprint data and reports from recycling and reuse signatories were also received and compiled into a file for analysis and checked for accuracy, completeness, and to make sure consistent methods to previous years have been used.
- Queries were followed up with signatories.
- The total amount of clothing received is analysed. End destinations for clothing that is sold on for different types of organisation were compared, for example comparing charity recyclers with textile recyclers.
- Changes over time are measured including the amount of clothing that goes to direct reuse.

3.1.2 National household waste composition estimates

The national household waste composition estimates have been a separate project and subject to external review. The waste composition analyses used were derived from a number of research agencies as well as local authorities. The results were quality checked and peer reviewed and coverage was either complete (as in Wales and Northern Ireland) or the results adjusted to account for coverage (England and Scotland) based on profiling of the local authorities. Further information about quality checking and uncertainty is provided in the full report, due for publication in 2019 ahead of the SCAP progress update.

4.0 Results

Along with the new set of results, all results from 2012-2017 have been restated using updated versions of the footprint calculator to account for changes in the methodology of measuring the impact of some fibres. Additionally, some signatories have submitted changes to previous years data if errors were found in the submission. Because of this some figures for data from 2012-2017 may be different to the figures stated in previous SCAP reports.

4.1 Headline results

Eleven SCAP retailers completed reports in 2018. One of these eleven has been excluded from the 2018 SCAP report as it is that organisation's first report and there is no baseline to be compared to.

Table 3 provides the level of change in the carbon, water, and waste footprints from 2012 to 2018. This includes the reduction in carbon and water footprints of clothing sold by SCAP retailers and brands. The percentage reduction per tonne of garments sold is provided compared to targets. The absolute footprint reduction is given in the final column; this is affected by a fall in signatory sales since 2012. Reduction in waste from garments received by charity recyclers between 2015 and 2018 combined with the reduction in waste achieved by the retailers is provided as an indication of progress against the waste footprint. A large part of the total reduction from 2012-2018 is explained by the overall decrease in sales for SCAP signatories in that time period.

Table 3 Percentage change compared to targets from 2012 to 2018

Indicators	Targets	2012-2016	2012-2017	2012-2018
		% reduction per tonne reported for each year		
Carbon footprint (t CO_2e per tonne)	-15%	-10.6	-11.9	-13.4
Water footprint (m^3 per tonne)	-15%	-13.5	-17.7	-18.1
Waste footprint (tonnes per tonne)	-3.5%	-0.8	-1.1	-1.4
Clothing in household residual waste (t)	-15%	-14%	*Not updated*	-4%

Figure 1 below shows the percentage reduction over time in carbon and water footprints compared to the target. The water footprint has already exceeded the SCAP target, the carbon target has not yet been achieved but continuing at this rate it will be reached before 2020. It is important to note that much of the progress towards both carbon and water targets is from background changes, including changes to the fibre mix driven by market prices or fashion, rather than sustainability improvement actions. External factors that have been updated since 2012 have also had an effect, particularly on progress towards the carbon target. For example, changes in electricity generating mix based on the mix of fuels used to generate grid electricity, and changes to the proportion of residual waste that either goes to landfill or incineration. The

waste footprint target continues to look very challenging to achieve. Section 4.3.3 provides more information about measurement of the waste footprint.

Figure 1 Percentage reduction in SCAP retailers' carbon and water footprints per tonne of garments, compared to targets, from 2012 to 2018

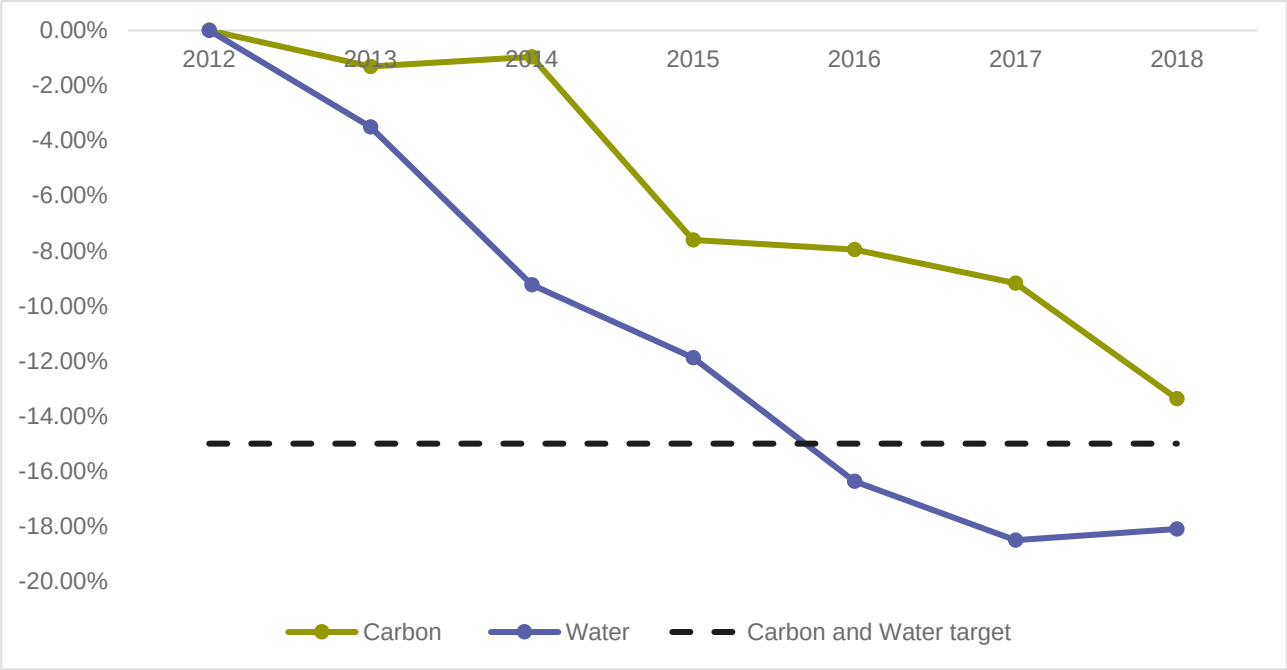


Figure 2 SCAP retailers' carbon, water and waste footprints per tonne of garments, from 2012 to 2018

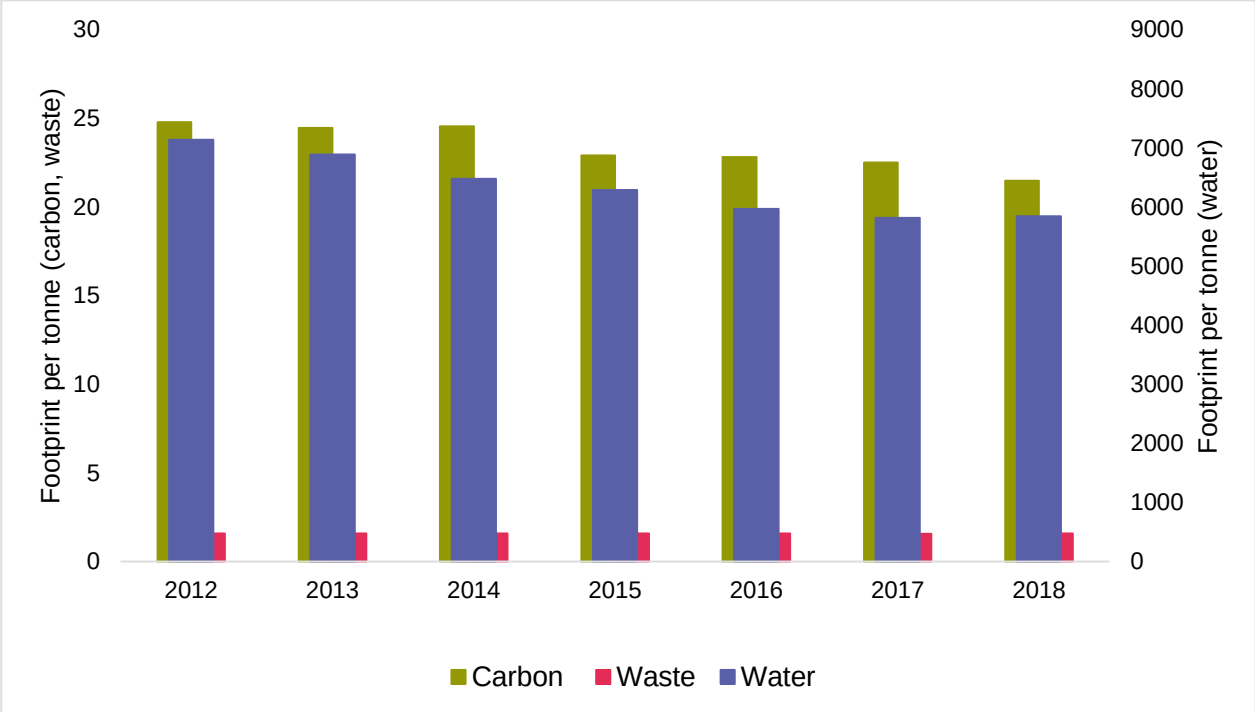
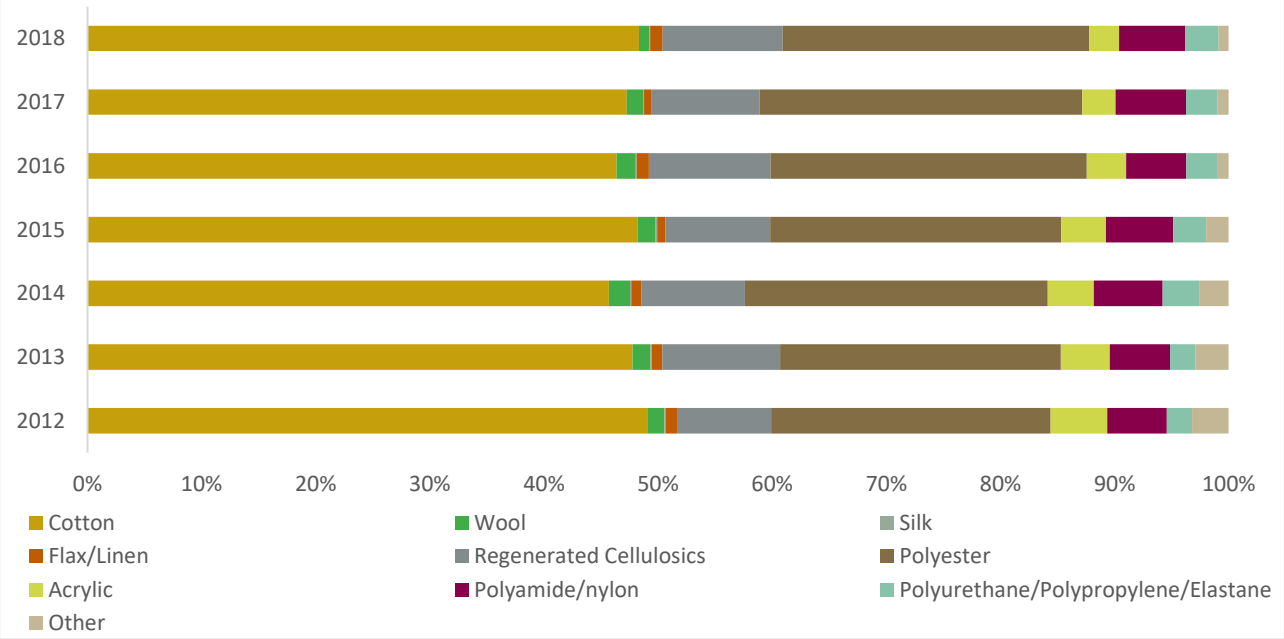


Figure 2 shows year-on-year carbon and water footprints per tonne of garments since 2012. The water footprint is on the right-hand vertical axis and the carbon footprint is on the left-hand axis. The trend overtime has been a reduction in both the carbon and water footprint, though the water footprint did rise marginally this year having already met the SCAP target.

4.2 Fibre breakdown

The total quantity of fibres (i.e. weight of SCAP signatories' garment sales) reported reduced slightly by 1.2% in 2018 compared to the previous year's reporting, down from 320,000 tonnes to 316,000 tonnes. Use of improved fibres has increased over this time. There has been limited change in the average fibre composition of clothing sold by SCAP signatories over time, as shown in Figure 3. This shows that since 2012 there have been slight increases for regenerated cellulosics and polyester, with similar sized decreases for acrylic and fibres labelled "other". The rest of the fibres have stayed consistent with; cotton, wool, and silk all decreasing by less than 1%; and flax/linen, polyamide/nylon, and polyurethane/polypropylene/elastane all increasing by less than 1%.

Figure 3 SCAP fibre composition for each year 2012-2018



Change over time to fibre composition of garments sold by each individual retailer is much more varied than the average across signatories. Figure 4 shows the range of variation by fibre type for individual retailers from the baseline year up to the current year. The average fibre composition displayed in Figure 4 is different to the SCAP average provided in Table 4, because the Figure 4 does not weight by the size of the retailer whilst in the overall SCAP result it is.

Table 4 Fibre composition of garments sold by SCAP retailers, on average, each year from 2012 to 2018, and percentage increase in use of each fibre type

Total fibre	2012	2013	2014	2015	2016	2017	2018
Cotton	49.0%	47.8%	45.7%	48.2%	46.4%	47.3%	48.3%
Wool	1.5%	1.6%	1.9%	1.6%	1.7%	1.4%	0.9%
Silk	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Flax/Linen	1.0%	0.9%	0.9%	0.7%	1.0%	0.6%	1.1%
Regenerated Cellulosics	8.3%	10.3%	9.1%	9.2%	10.7%	9.5%	10.5%

Polyester	24.5%	24.6%	26.5%	25.5%	27.7%	28.3%	26.9%
Acrylic	5.0%	4.3%	4.0%	3.9%	3.4%	2.9%	2.6%
Polyamide/nylon	5.2%	5.2%	6.0%	5.9%	5.3%	6.2%	5.8%
Polyurethane/Polypropylene/Elastane	2.2%	2.2%	3.2%	2.9%	2.7%	2.8%	2.9%
Other	3.2%	2.9%	2.6%	2.0%	1.0%	1.0%	0.9%

Figure 4 Range of % change for each fibre type for individual retailers 2012-2018

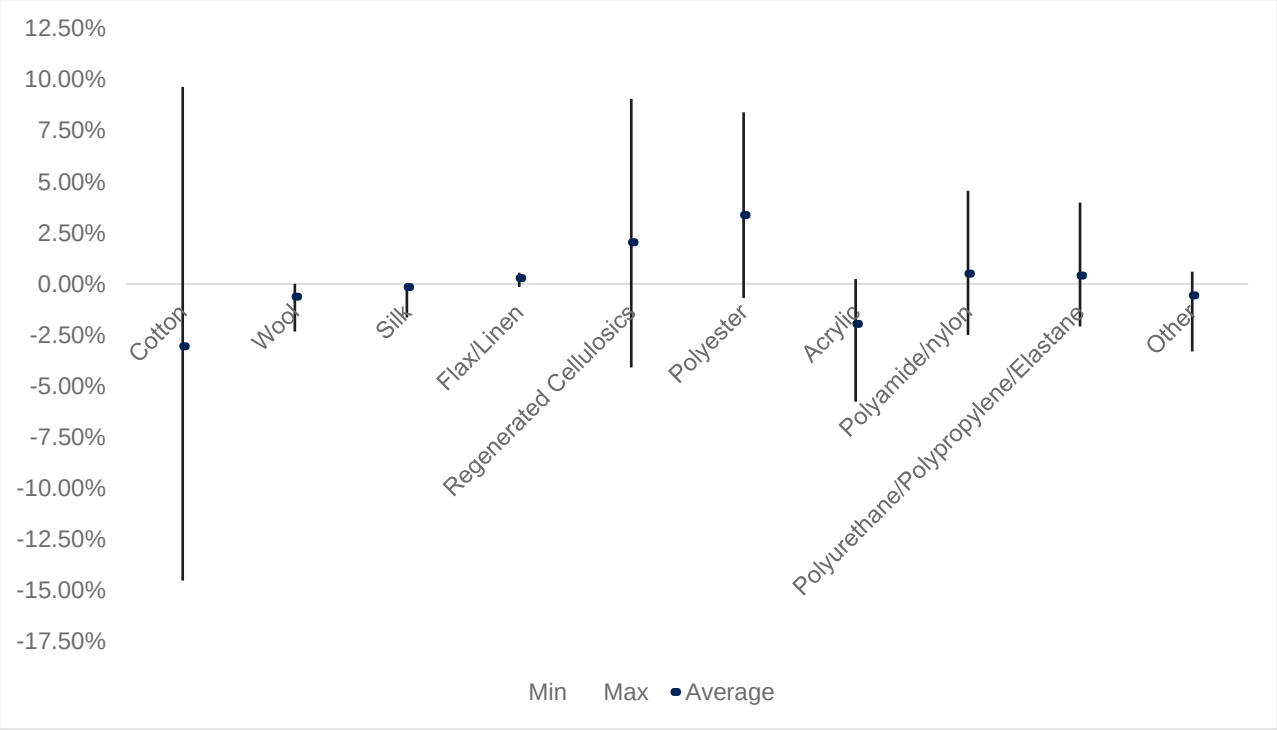
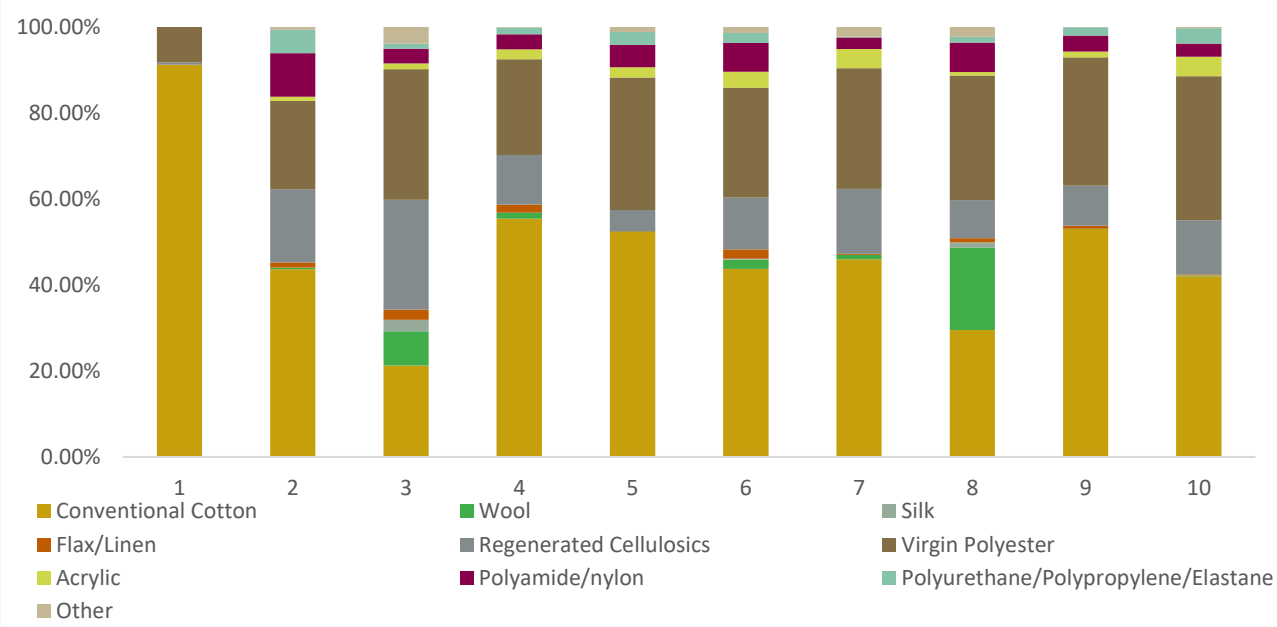


Figure 5 Anonymised individual retailer fibre breakdown 2018



*Retailers randomly assigned #1-10, order here is different to figure 14 in this report

Whilst the overall fibre composition of garments sold by SCAP retailers has changed little since 2012, this masks larger variations by individual retailers for some fibres. This is especially true for cotton where one signatory increased their use of cotton by nearly 10%, while another reduced cotton in their fibre mix by nearly 15%. In 2018 there are some significant differences between the fibre composition of the retail signatories for example, for most retailers, wool is a negligible fibre but for retailers 3 and 8 in Figure 5, it makes up a significant part of their fibre mix.

4.3 Footprint results

4.3.1 Carbon Footprint

Figure 6 shows the total carbon footprint of garments sold by SCAP retailers in 2018, by fibre type and life cycle stage. Cotton and polyester have the largest footprints and they are the most used fibre types. Production, processing, and the use phase (after purchase, during wear, impacts arise from laundry), are all important. Disposal marginally reduces the carbon footprint of the fibres through the displacement of production and processing impacts when clothing is reused.

Figure 6 Carbon footprint of garments sold by SCAP retailers in 2018, showing the footprint by life cycle stage and main fibre type

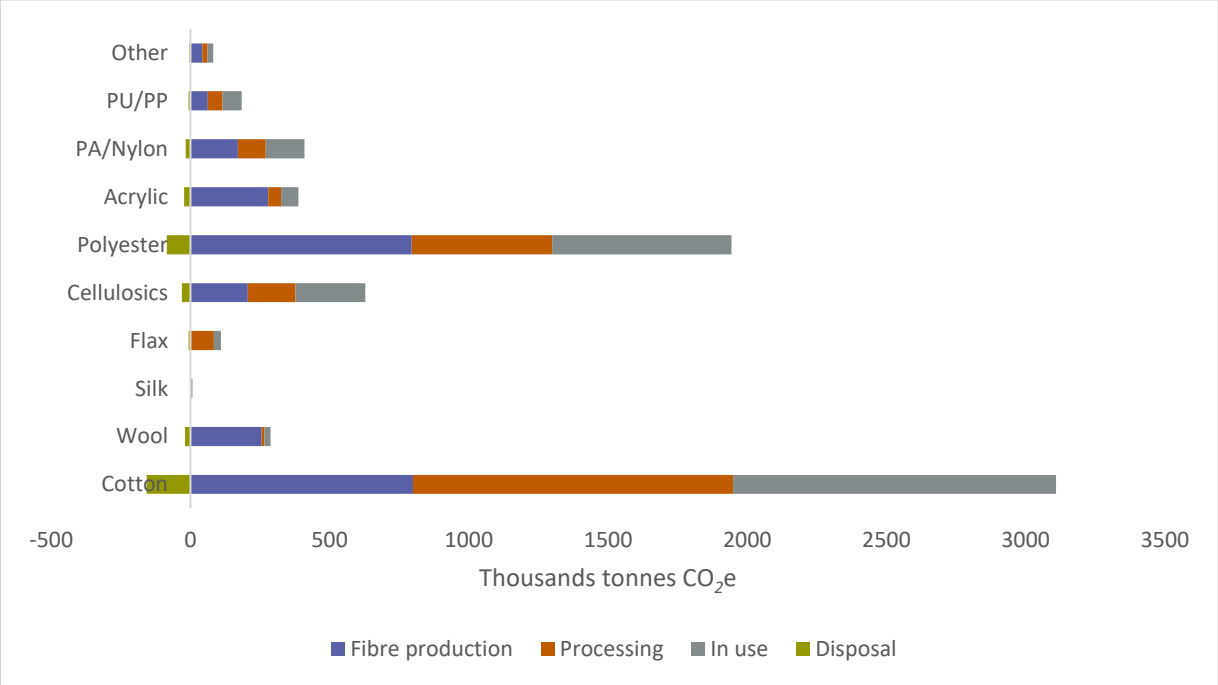
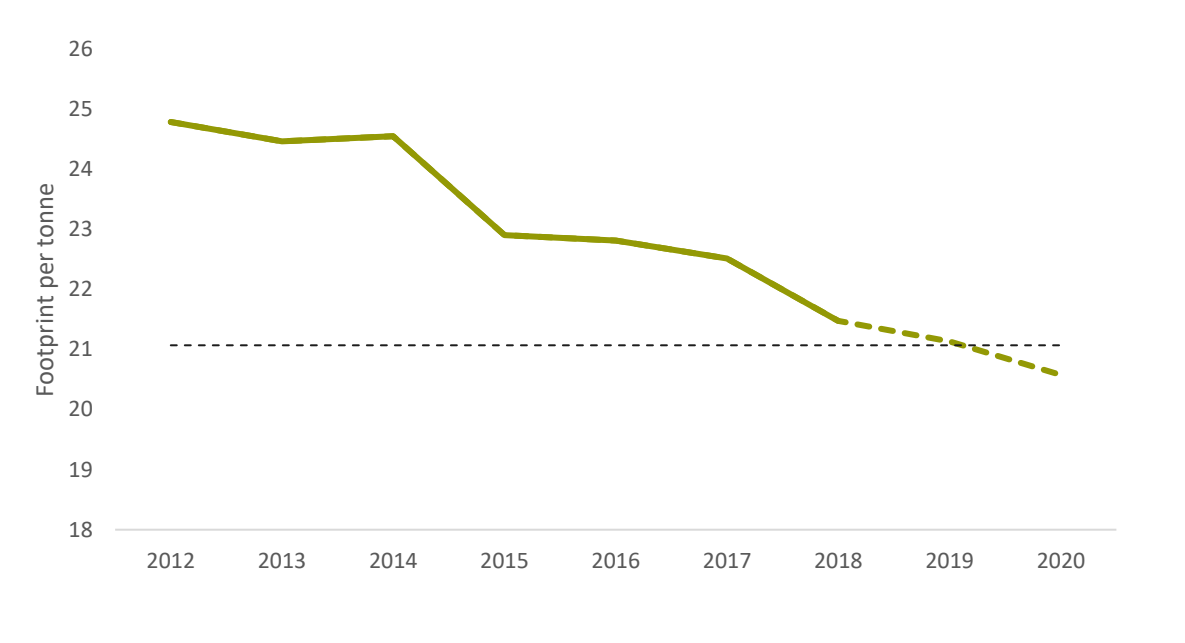


Figure 7 indicates the potential change in carbon footprint by 2020 if the current trend continues. The carbon footprint of garments sold by SCAP retailers reduced, on average by 13.4% between 2012 and 2018. Multiple factors working together have caused this total reduction (see Section 4.5).

Figure 7 Carbon footprint compared to on-target trajectory 2012 extending out to 2020



The black dashed line represents the SCAP target of a 15% reduction in the carbon footprint per tonne, the blue dashed line is a linear projection of the carbon footprint per tonne. It is currently projected that the SCAP target will be hit after 2019 and exceeded by the end of 2020. This will only be achieved if SCAP signatories continue to actively make improvements to their carbon footprint.

Progress includes factors such as background changes in the model (including, for example, the carbon factors for national grid electricity production and changes to use phase energy consumption during laundry), as well as changes in fibre composition, on top of the improvement actions by retailers. Such external factors are largely beyond the control of SCAP and its signatories. For example, sources of grid electricity could affect progress against the carbon target and it is not certain that they will contribute to reductions in emissions, the grid mix could instead switch back towards fossil fuels. Another potential risk in regard to hitting the reduction target is the increase in the amount of synthetic fibres used which in general are more carbon intensive than their natural counterparts. Further risks include the average lifetime of clothing in the UK reducing below 3.3 years before the 2020 end date.

4.3.2 Water Footprint

Figure 8 shows the total Water footprint of garments sold by SCAP retailers in 2018, by fibre type and life cycle stage. Cotton has by far the largest footprint, this is also disproportionate to its presence in the fibre mix, regenerated cellulosics are the next most impactful fibre. Fibre production is the most important life cycle stage for the water footprint (see also section 4.7.2)

Figure 8 Water footprint of garments sold by SCAP retailers in 2018, showing the footprint by life cycle stage and main fibre type

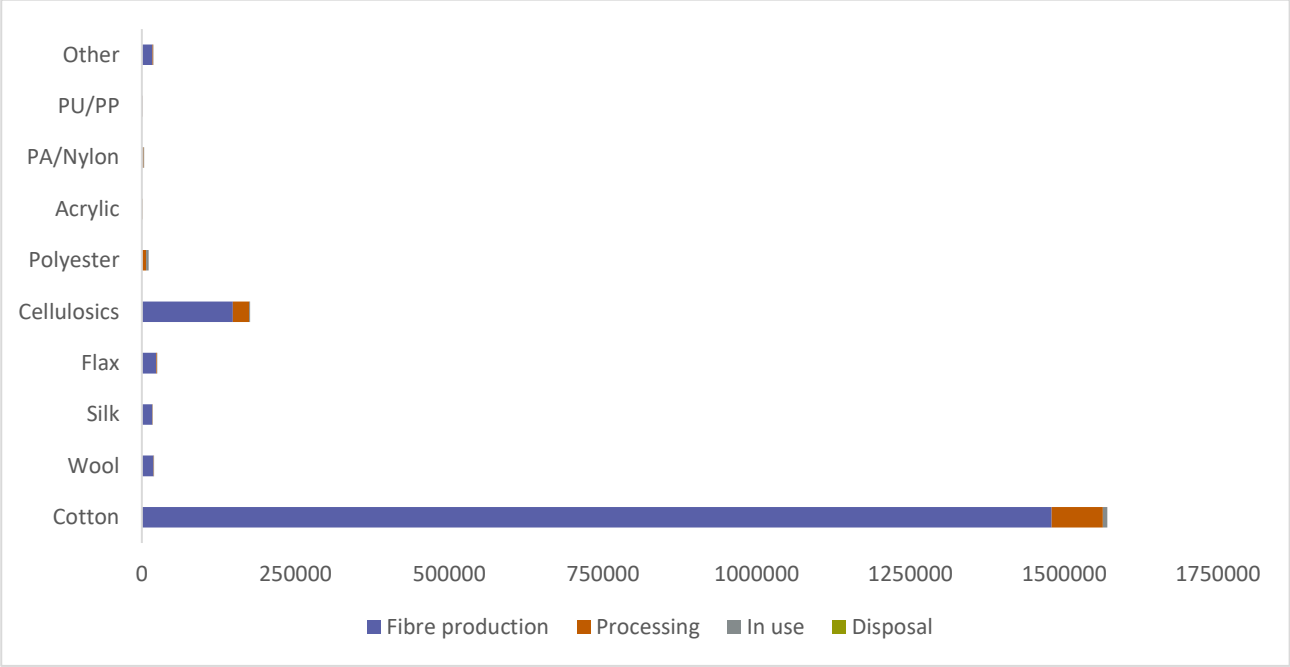


Figure 9 shows reduction in the water footprint of garments sold by SCAP retailers. On average the footprint per tonne of garments sold had reduced by 18.1% between 2012 and 2018. Multiple factors working together have caused this reduction, with the use of BCI cotton being a large contributor.

Figure 9 Water footprint compared to on-target trajectory 2012 extending out to 2020

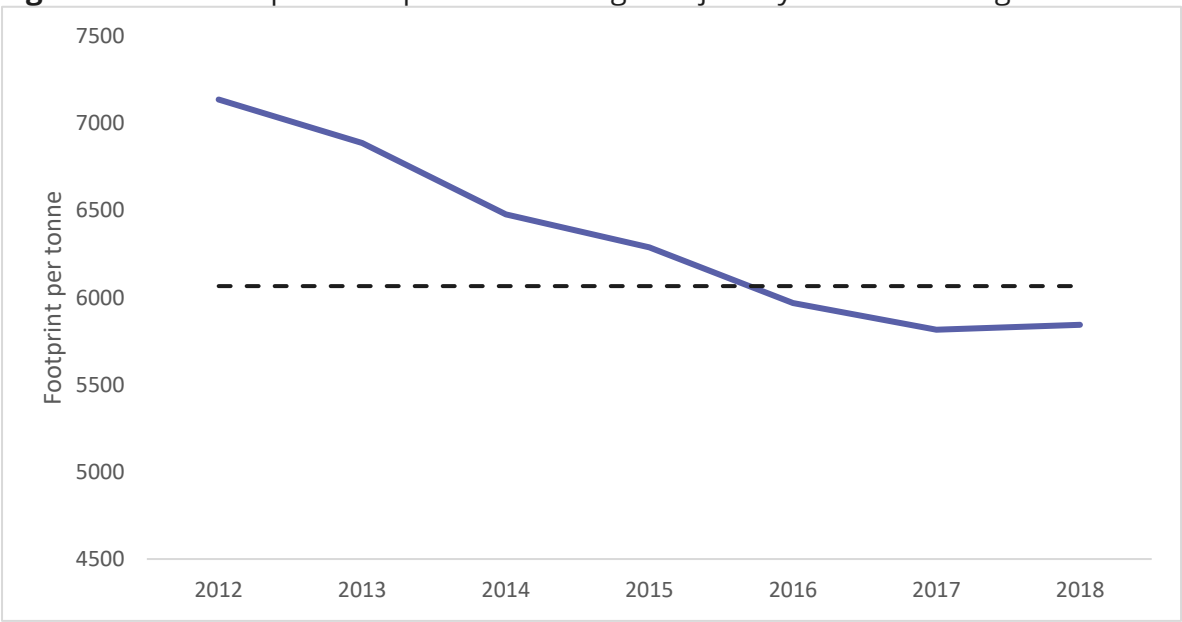


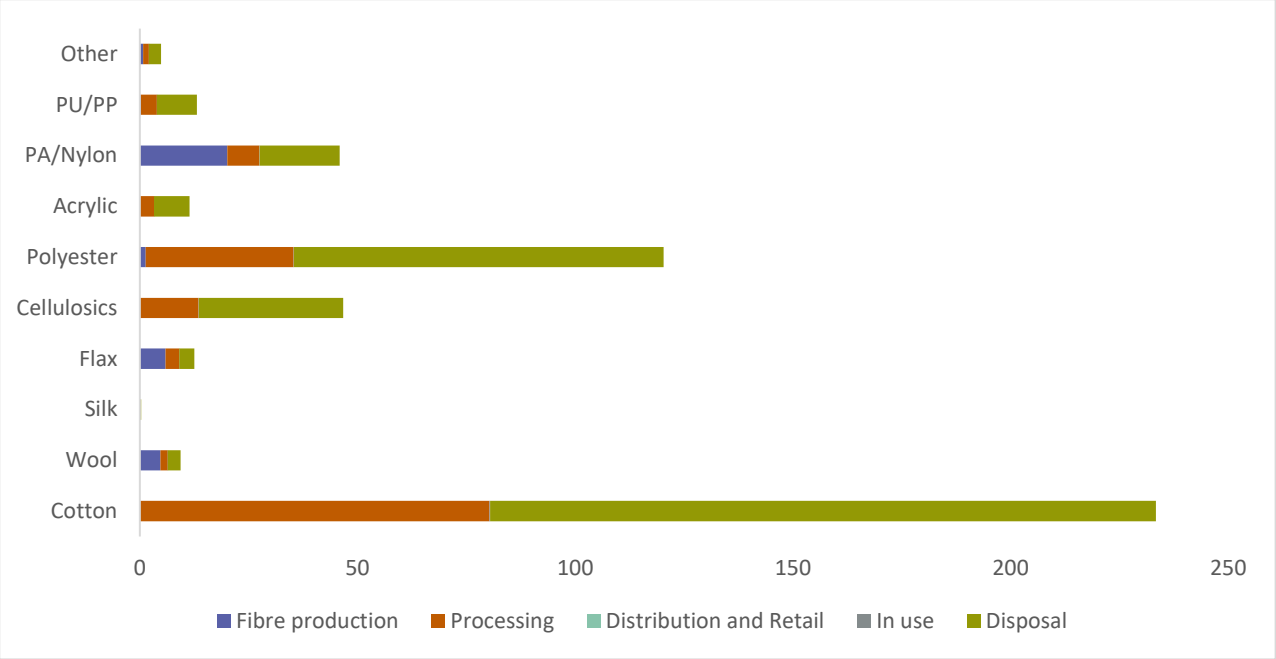
Figure 8 shows that the production phase of cotton fibre has the greatest impact on the water footprint. Improvement actions that target this stage in the life cycle of clothing will have the most impact on SCAP's overall water footprint. More use of improved viscose fibres will also impact on the water footprint, and improved dyeing techniques also provide opportunity for further reduction.

4.3.3 Waste Footprint

Figure 10 shows the total waste footprint of garments sold by SCAP retailers in 2018, by fibre type and life cycle stage. The waste footprint includes garments disposed at the end of the primary use phases as well as disposal from supply chain process. Cotton and polyester are the two largest contributors to waste; they are also the two most used fibre types.

While the retailers have achieved a 0.8% reduction in waste, this is mostly a result of changes in fibre composition rather than improvement actions.

Figure 10 Waste footprint of garments sold by SCAP retailers in 2018, showing the footprint by life cycle stage and main fibre type



SCAP also works with recycling and reuse organisations who collect, sort, and distribute used clothing directly for reuse in the UK, and to a range of onward destinations. Findings show a 9.9% reduction in the waste footprint from garments handled by recycling and reuse organisations since 2015. This is measured separately from the retailers' waste footprint results, as it is derived from an assessment of the proportion of donated clothing that is re-sold by SCAP charity recyclers directly as clothing in the UK (excluding clothing that is received from SCAP signatories as this improvement is claimed in the retailer's report).

The brands and retailers' waste reduction and charity retailers' waste reduction has been combined by using a weighting factor of 0.0588 on the implied waste reduction per tonne of clothing for the recycling and reuse signatories of 9.9% (see Table 4). This has been added to the retailer waste reduction results of 0.8% to give a total waste reduction of 1.4% (0.8% + 0.6%) between 2015 and 2018.

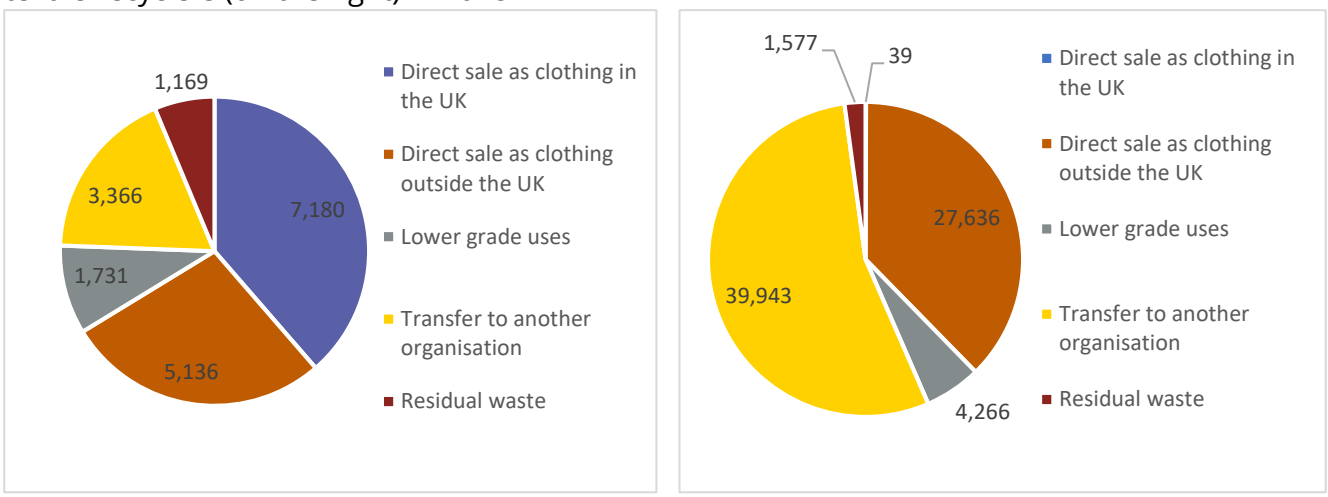
Table 4 Quantities and percentages of clothing handled by SCAP charity retailers and sold in the UK, compared to clothing going to other routes, 2015 – 2018

	Quantity going to	Reuse as a % of all material	Total received	Waste as a % of all material	Implied waste reduction per

	reuse in the UK				tonne of clothing
2015	8,913	28.7%	31,015	71.3%	
2016	8,038	27.2%	29,602	72.9%	1.6%
2017	7,114	30.1%	23,671	70.0%	-1.3%
2018	7,180	38.6%	18,582	61.4%	-9.9%

The quantity of clothing going to reuse in the UK and to other end destinations for charity retailers is different to the recycling and reuse signatories as a whole, see Figure 11. The total amount of clothing going to charity retailers has reduced since 2015 but the percentage that goes on to reuse in the UK has increased during the same timeframe, explaining the large increase in implied waste reduction.

Figure 11 The onward destinations of clothing redistributed by charity retailers (on the left) and textile recyclers (on the right) in 2018



A number of data limitations exist for the recycling and reuse signatories:

- Data gaps in 2012 – 2014 were too significant to backfill since assumptions would largely have governed the results, so 2015 was chosen as the baseline.
- Charity retailers who have provided reports account for approximately one-third of the total weight of garments handled by SCAP recycling and reuse organisations. The true proportion may be larger due to double-counting with the remaining sample. The quantity of garments handled by SCAP charity retailers is significantly less than the quantity sold by SCAP retailers.
- Little is known about what happens to clothing once sold outside the UK but much of it is sorted again before being sent onwards. Restrictions on clothing imports by several countries may have affected this trade.

4.4 Improvement actions

The annual amount of claimed improvement actions is shown in Table 5. The number of retailers reporting each action is shown – with the highest frequencies occurring for lyocell and BCI cotton. Organic cotton, recycled polyester, and collections for reuse/recycling were also reported

by the majority of retailers. 2018 has the most improvement actions of any year of the SCAP agreement.

Table 5 Total number of retail signatories reporting each of the improvement actions, each year since 2012

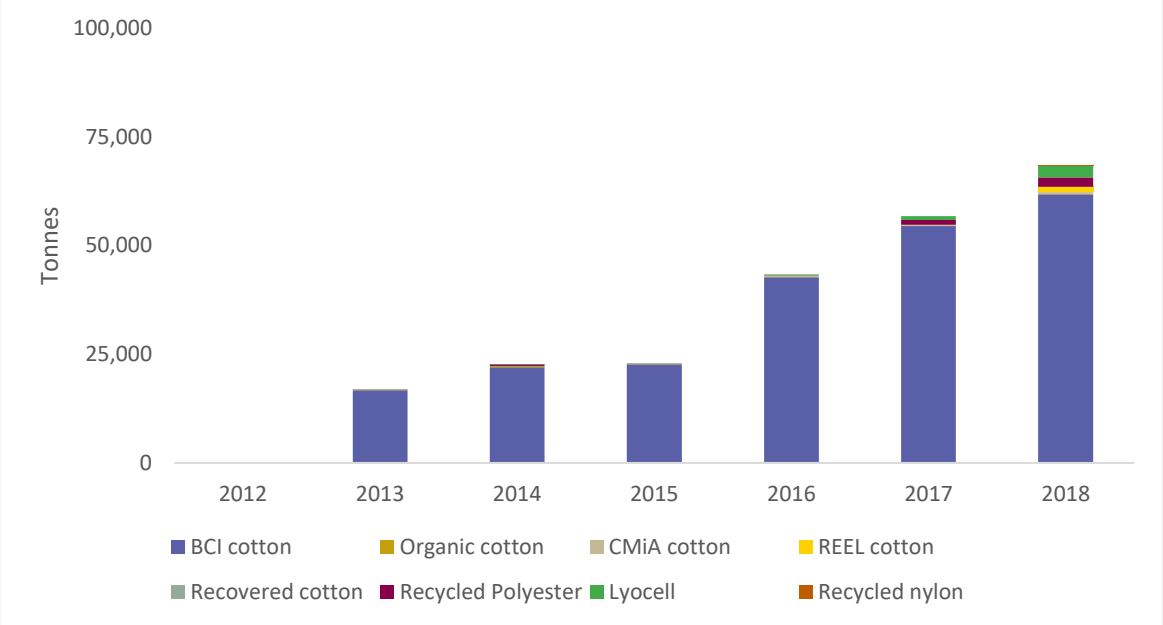
	2012	2013	2014	2015	2016	2017	2018
Conventional Cotton to BCI Cotton	0	3	3	4	6	8	8
Conventional Cotton to Organic Cotton	2	2	3	2	4	5	6
Conventional Cotton to CMiA	0	0	0	0	1	1	1
Conventional Cotton to REEL cotton	0	0	0	0	0	0	1
Conventional Cotton to Recover (recycled) cotton	0	0	0	0	0	0	2
Virgin Polyester to Recycled Polyester	1	1	2	1	3	5	7
Viscose to Lyocell	1	1	1	2	7	9	9
More in country reuse of pre-owned garments	0	0	0	0	0	0	3
Hire and repair services dematerialise retail sales	0	0	0	0	0	0	0
Virgin Polyamide / Nylon to Recycled Polyamide / Nylon	0	0	0	0	0	1	2
Conventional dyeing to dope dyeing of synthetic fibres	0	0	0	0	0	1	2
Conventional dyeing to CPB dyeing of natural fibres	0	0	0	0	0	0	1
Conventional dyeing to spin dyeing of viscose	0	0	0	0	0	0	2
Increase in collection for reuse/recycling	1	2	3	5	4	4	6
Total	**5**	**9**	**12**	**14**	**25**	**34**	**50**

All improvement actions are at either their highest or joint highest level in 2018, with all of the newly available improvement action being applied at least once. The percentage of improved fibres has continued to increase over time. Sustainable cotton now makes up over 41% of cotton sold (Table 6), and all other sustainable fibre types are at their highest reported levels. There is no minimum volume threshold for sustainable fibres to be reported and in some cases, very small quantities of sustainable fibres have so far substituted conventional fibres, which may represent less than 0.00% of the total use of that fibre in a given year.

Table 6 The percentage of improved fibre types replacing conventional fibres in garments sold by SCAP retailers

Total improved fibre	2012	2013	2014	2015	2016	2017	2018
BCI cotton	0.00%	10.57%	15.25%	15.48%	27.51%	36.02%	40.44%
Organic cotton	0.03%	0.03%	0.20%	0.04%	0.03%	0.06%	0.17%
CMiA cotton	0.00%	0.00%	0.00%	0.00%	0.20%	0.14%	0.15%
REEL cotton	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.82%
Recovered cotton	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Recycled Polyester	0.00%	0.00%	0.45%	0.01%	0.06%	1.22%	2.51%
Lyocell	0.03%	0.03%	0.04%	0.15%	0.70%	2.99%	8.18%
Recycled Polyamide/Nylon	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%
Total – sustainable cotton	0.00%	10.60%	15.45%	15.52%	27.74%	36.22%	41.58%
Total – all fibres	0.02%	5.07%	7.19%	7.49%	12.95%	17.75%	21.63%

Figure 12 Cumulative uses in tonnes of improved fibres for 2012-2018



The use of improved fibres increased by 20% from 2017 to 2018, up to 68,000 tonnes from 57,000 tonnes. Improved cotton fibres especially have seen large growth and represent the majority of all improvement actions, this can also be seen in BCI cotton's impact on the overall SCAP results. A greater variety of improved fibres have also been used especially in 2017 and 2018.

4.5 Contribution analysis

Figure 13 provides findings from the contribution analysis of the factors influencing the overall SCAP results in 2018. The contribution of each of the improvement actions, as well as of background changes to the fibre mix of garments sold by SCAP retailers, was modelled

separately to compare the percentage reduction in carbon, water, and waste footprints from each.

The analysis found that the change in the amount of BCI cotton has had the greatest impact on the water footprint, whilst changes to the fibre mix since 2012 have had the greatest impact on carbon and waste footprint reduction. All other improvement actions had only a very slight effect on all three of the indicators. A greater number of retailers reported taking a broader range of improvement actions in 2018. Despite this, Table 6 has shown that the proportion of conventional fibres replaced by improved fibres remains very small, with the exception of BCI cotton and Lyocell (8% up from 3% in 2017), and this accounts for the relative scale of contribution to footprint reduction.

Figure 13 Contribution analysis of the effects of improvement actions and changes to the fibre mix of garments sold by SCAP retailers

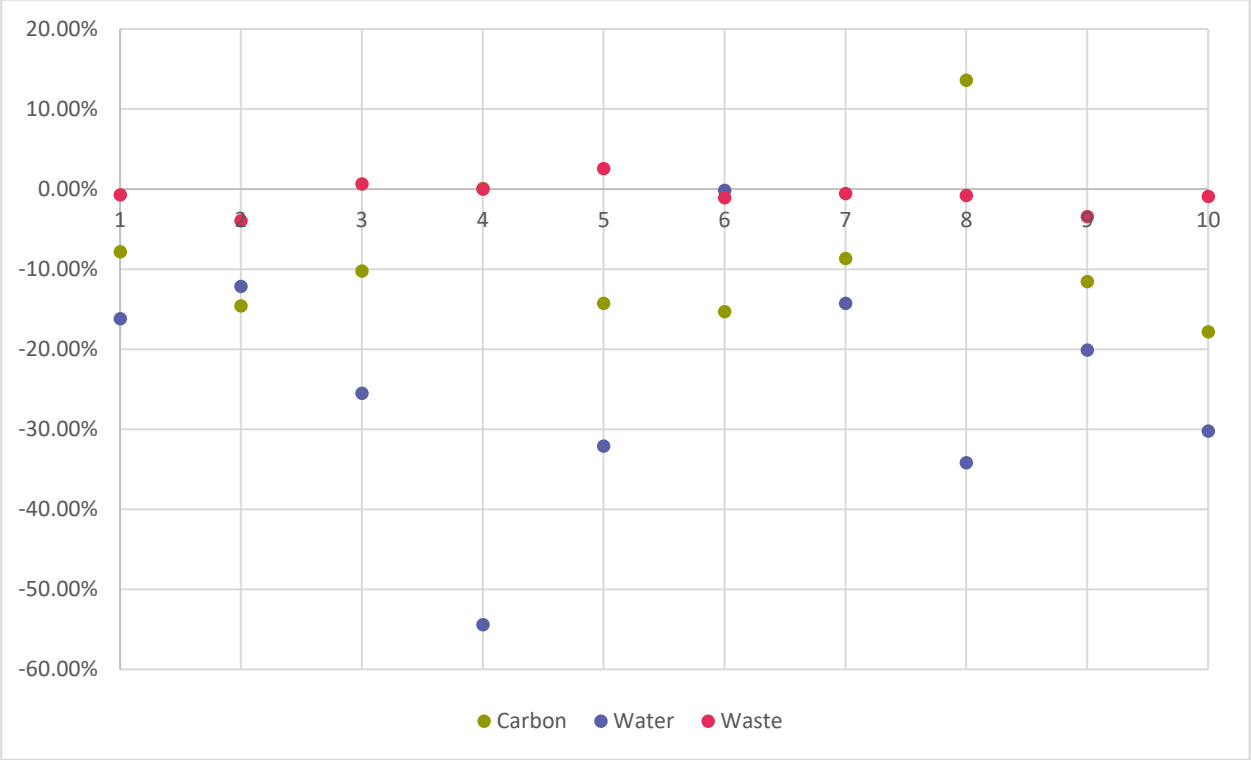
4.6 Benchmarked results

Figure 14 provides comparative carbon, water, and waste footprints for each of the SCAP retail signatories whose 2018 reports were used. Each report has been reviewed, fed back to the individual retailer, and discussed.

WRAP's in-house process of quality assurance queries the data used and results obtained are sense checked. Unexpected results are queried during this process. Further analysis of the input data is done where necessary to improve accuracy. Once the process is complete, the footprint results are combined for analysis and can be used by the retailers and brands, together with

qualitative knowledge of their own strategic goals and targets to generate recommendations. The results are compared, and unusual results identified to test validity and generate learning.

Figure 14 Comparative change in carbon, water and waste footprint of anonymised SCAP retail signatories



*Retailers randomly assigned #1-10, order here is different to figure 5 in this report (Carbon result hidden behind waste result for retailer #4)

A small number of retailers have been able to achieve very large water footprint reductions. The main driver for water footprint reduction by retailers showing better results was switching away from cotton and silk to synthetic fibres. The large quantity of more sustainable cotton, such as BCI Cotton, reported by retailers has started to have a major effect on the footprint results, this is part of the reason that for the SCAP agreement as a whole the water footprint has seen the greatest reduction. The use of Lyocell and improved dyeing techniques has also marginally improved the carbon and water footprints, greater use of these improvement action would see even larger effects.

4.7 Waste to landfill and incineration (energy from waste)

The National Household Waste Composition study has found 336,000 tonnes of clothing in the household residual waste in 2017[2]. This is an increase of approximately 25,000 tonnes compared to the last such estimate from 2015, but still a decrease compared to the SCAP baseline from 2012, when there were 350,000 tonnes of clothing in household residual waste. However, the reduction in clothing waste to landfill and incineration (energy from waste) achieved between

[2] WRAP report not yet published at the time of writing

2012 and 2017 is just 4% for the UK as a whole. Comparing 2012 with 2015 previously indicated the 15% target had almost been achieved[3], reporting a 14% reduction in clothing in household residual waste. Meeting the target by 2020 now looks less likely.

The approach taken in the recent survey was designed to be comparable to the previous synthesis reported in 'Valuing Our Clothes' (2017). Both the household residual bin and waste in the residual section at household waste recycling centres were included in the analysis. In both studies, samples were taken from across the UK from studies that had already been carried out. The syntheses combined the results and weighted them to reflect the national population.

Although the category of clothing was able to be separated out in the data, it has not been possible to determine the cause of the increase in clothing waste to landfill and incineration. Apparent consumption has been estimated previously at UK level, and reported in Valuing our Clothes (2017). The trend indicated at that time suggested that there had been growth in consumption between 2010 and 2016, although there was a reduction between 2010 and 2012. The average lifespan of clothing is around 3.3 years in the UK and as such, it might be expected that the quantity of clothing going into the residual bin would increase between 2017 and 2019. However, assumptions about the connection between apparent consumption and quantities of clothing appearing in the waste bin lack further supporting evidence and other explanations should be considered. For example, reduced lifespan of clothes meaning they must be disposed of sooner; perceived lower value of clothing bought at low prices; people's suspicion of "charity bag" collections, following negative press about the legality of operators in the UK; and questions that have been raised about export markets for second hand clothing. Further research could check attitudes, circumstances and behaviours that lead people to use the residual bin, particularly if this increase is repeated in future.

[3] WRAP (2017) Valuing Our Clothes, the cost of UK fashion

5.0 Conclusions

Overall the review of SCAP reports has been able to confirm that due to a combination of multiple factors since 2012, the SCAP water target has been met. At the current rate of progress, the carbon target will also be met before 2020, although it is unlikely that either of the waste targets will be met by 2020.

The most impactful factor for the reduction in water footprint is the high level of usage of BCI cotton. Changes in modelling assumptions including the electricity grid mix and laundry behaviour, in fibre composition, and increased use of BCI cotton, are together responsible for the reduction in the carbon footprint. Overall the use of BCI cotton is by far the most sizeable, and the most impactful improvement action applied by SCAP signatories.

The water target has been met with a reduction of 18.1%. The carbon target has not yet been met with a reduction of 13.4%. Recommendations to reduce the carbon footprint of garments sold in the UK include a range of actions targeting stages along the whole life cycle:

- Greater use of improved fibres including cotton fibres bought with the Better Cotton Initiative, Organic cotton, Cotton Made in Africa, and Cotton Connect.
- Greater use of lyocell replacing viscose.
- New dyeing techniques using reduced heat / reduced processes to reduce energy use such as Cold Pad Batch and dope dyeing.
- The use of recycled fibres, especially, where possible, moving towards greater use of closed loop technologies, for example by using recycled cotton.
- Increasing the number of garments sold directly second hand in the UK.
- Introduction of hire and repair services. One signatory has so far introduced a repair service as an improvement action however the data was not able to be included in this report.

More signatories applying these improvement actions or increasing the amount they currently apply could help achieve the SCAP carbon target by 2020. If SCAP retailers use more synthetic fibres by 2020 this has the risk of increasing the carbon footprint and would outweigh the positive effects of the improvement actions.

Clothing disposed by UK households and sent to landfill and incineration (energy from waste) has reduced by just 4% compared to 2012 against a 15% reduction in clothing waste going to landfill and incineration. The reasons for this lack of progress on waste are difficult to track over time. There has been little progress in implementing reuse improvement actions by SCAP signatories. While the circular economy as a concept is gaining recognition, growth in reuse has moved from pilot stage to gain more mainstream currency relatively recently compared to uptake of sustainable fibres.

Waste footprint reduction has been reconsidered in this report and waste prevention due to the activities of the recycling and reuse organisations has been combined with the waste reduction of the retailer signatories. A small reduction in waste of 1.4% was measured against a target of a 3.5% reduction in waste footprint. While it is possible to say that SCAP charity retailers increased reuse in comparison to other destinations lower down the waste hierarchy between 2015 and 2018, a number of data limitations remain suggesting that data collection needs to continue, to better understand the true nature of the waste footprint of clothing, both in the UK and overseas.

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Our mission is to accelerate the move to a sustainable resource-efficient economy through re-inventing how we design, produce and sell products; re-thinking how we use and consume products; and re-defining what is possible through re-use and recycling.

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