Progress Report

Sustainable Clothing Action Plan 2020 Commitment: progress against footprint reduction targets 2012-2017

Project code: BCV002-002
Research date: March – October 2018 **Date:** December 2018

WRAP's vision is a world in which resources are used sustainably.

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.

Find out more at www.wrap.org.uk

Document reference (please use this reference when citing WRAP's work):
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Front cover photography:

Executive summary

The Sustainable Clothing Action Plan (SCAP) 2020 Commitment is a voluntary agreement by businesses, reuse & recycling organisations and other stakeholders to reduce the use of resources in the clothing sector by end-2020. WRAP set up the collaborative framework in 2012, and signatories include 11 retailers and brands that sell more than half of UK clothing (by volume).

SCAP signatories collectively aim to achieve the following targets by end-2020 relative to the 2012 baseline year:

- 15% reductions in the carbon and water footprints of clothing placed on the market in the UK by SCAP retailers & 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 in the UK.

This report provides an update on progress against the signatory targets; progress against the UK landfill targets (last reported in 2016 as a 14% reduction) will be re-assessed in 2019 using recent local authority data. The report provides data on the carbon and water footprint associated with garments sold in the UK by SCAP retailers and brands, comparing baseline data for 2012 with the most recent year's data for 2017. The reduction in the waste footprint is estimated from 2015-2017 data provided by SCAP charity recyclers for the reuse of garments in the UK.

The headline results are:

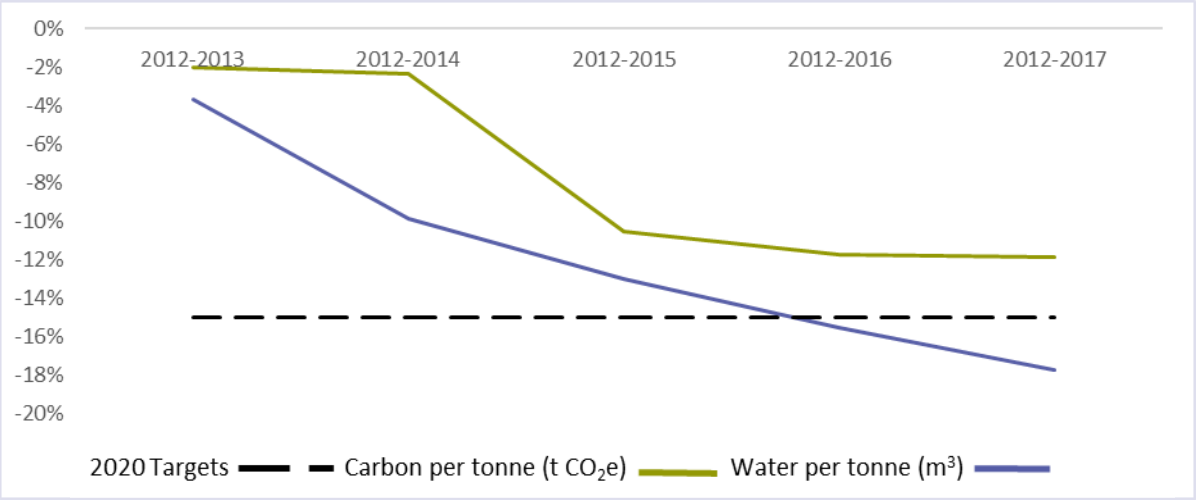
- 11.9% reduction in the carbon footprint per tonne of garments (cf. 15% target);
- 17.7% reduction in the water footprint per tonne of garments (cf. 15% target); and
- 1.1% reduction in waste per tonne (cf. 3.5% target).

While the SCAP water target has been met, further action is needed to meet the carbon target, and the waste footprint target continues to look extremely challenging.

This report discusses contributory factors, including changes in the average fibre mix of garment sales across the retailers, adoption of improved fibres (i.e. lower footprint fibres such as more sustainable forms of cotton), and other improvement actions taken. The report concludes with recommendations for further action, derived from the results.

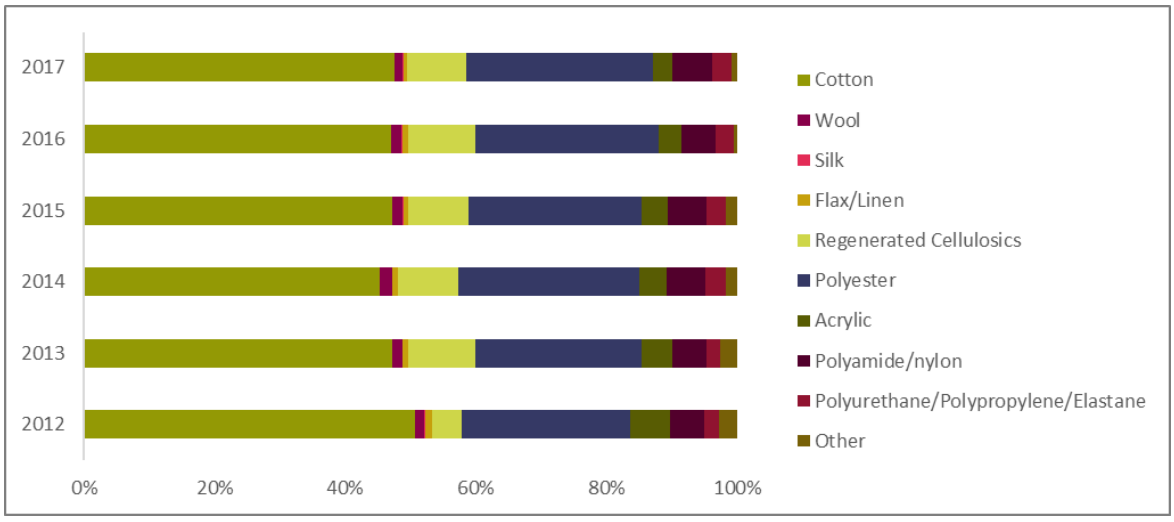
Figure 1 summarises the change in the carbon and water footprints. These footprints are calculated from data on types and quantities of fibres in garments sold. The total quantity of fibres reported reduced slightly by 1.2% in 2017 compared to the previous year's reporting, down from 357,000 tonnes to 353,000 tonnes.

Figure 1: Percentage reduction in SCAP retailers' carbon and water footprints per tonne of garments, compared to 15% target, from 2012 to 2017



Across SCAP retailer signatories, cotton and acrylic have decreased their percentage share of the fibre mix since 2012 (by 3% each) while polyester increased by 3% (see Figure 2). Regenerated cellulosic fibres increased until 2017 when there was a reduction compared to 2016 (with a net increase of 4% during 2012-2017). These changes in fibre mix affect the footprints, since different fibres have different impacts per tonne.

Figure 2: Fibre breakdown of SCAP retailers combined



The use of improved fibres increased during the same timeframe, up to 45,000 tonnes from 42,000 tonnes. There has been a significant adoption of Better Cotton Initiative

(BCI) cotton and the share of sustainable cotton (relative to total cotton) purchased for 2017 exceeded 27% for the SCAP retailers combined, thanks to the efforts of several of the larger retailers. This compares to 0% improved cotton in 2012. Data from one SCAP retailer not included in the current analysis would bring the mean proportion of sustainable cotton to 30% among SCAP retailers. At least three SCAP signatories increased their use of sustainable fibres to over 60%.

The change in the fibre mix makes the largest contribution to the reduction in footprints. The increase in BCI cotton accounted for a 5% reduction in water footprint and 0.7% reduction in carbon footprint. Other improvement actions had only a slight effect on the footprints. Nevertheless, SCAP signatories have increasingly introduced a range of improvement actions, as illustrated in Table 1. This Table shows the number of retailers reporting each action – increasing from 10 instances across four types of action in 2012, to 46 instances across nine types of action in 2017. The highest frequencies in 2017 occurred for lyocell and BCI cotton, while organic cotton, recycled polyester, and collections for reuse/recycling were also reported by the majority of retailers.

Table 1: Number of retailers reporting each of the improvement actions tracked and quantified by SCAP

	2017	2016	2015	2014	2013	2012
Conventional cotton to BCI cotton	10	8	7	6	5	0
Conventional cotton to organic cotton	8	7	6	7	6	4
Conventional cotton to CMiA cotton	3	3	0	0	0	0
Virgin polyester to recycled polyester	7	6	5	6	5	3
Viscose to lyocell	11	10	5	4	4	2
More UK reuse of pre-owned garments	2	0	0	0	0	0
Increase in collection for reuse/recycling	2	6	8	5	1	1
Hire and repair services dematerialise retail sales	0	0	0	0	0	0
Virgin polyamide / nylon to recycled polyamide / nylon	2	0	0	0	0	0
Conventional dyeing to dope dyeing of synthetic fibres	2	0	0	0	0	0
Conventional dyeing to CPB dyeing of natural fibres	0	0	0	0	0	0
Number of improvement actions taken	9	6	5	5	5	4

A further contribution to reducing the carbon footprint is a cumulative move since 2012 towards lower temperature laundry behaviours by UK citizens, assisted by lower carbon electricity generation in the UK. The 2017 data do not include any measurement of changes in laundry behaviour in the last year.

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Acknowledgements

Thank you to Holly Browne and Soledad Contreras from Made-By for technical support, and to Dr Mark Sumner from the University of Leeds along with the constructively challenging, deliberative forum that is the SCAP Metrics Working Group.

1.0 Introduction

The urgency in the reporting on the latest report from the IPCC (1,2), calls for systemic change (3), the prominence of the concept of Circular Economy (4), and the focus provided by the recent Environmental Audit Committee review of the fashion system (5), provide multiple reasons to consider progress to date on combatting the environmental impacts that arise directly and indirectly from the fashion industry and clothing retail in the UK.

The Sustainable Clothing Action Plan (SCAP) was an early innovator among programmes to bring about deep collaboration between different actors to improve the sustainability of clothing. The SCAP targets run to 2020 and so the journey is not complete yet.

This report provides an update on progress in measuring footprint reduction associated with garments sold in the UK by SCAP signatories. Results to date are provided. Baseline data (2012) is compared to the most recent year's reporting (2017) for current SCAP retailers. Data for SCAP recycling and reuse signatories is used to estimate reduction in the waste footprint.

The information that follows includes description of the SCAP reporting methodology 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. Footprint results as a whole are then presented, followed by a closer look at the carbon, water, and waste footprint data. Finally, comparison is made with external conditions to SCAP before the conclusions and recommendations.

2.0 Methodology

2.1 SCAP reporting process for retailers and brands

2.1.1 Data preparation and data entry creates footprint data for each signatory

- Signatories mine data from internal databases, inventories and enterprise resource planning systems, identifying all garment purchases and / or sales in the last year and converting this data to a weight for each fibre type within those garments using fibre composition data.
- Data are input to the SCAP footprint calculation tool by signatories with advice from WRAP. The overall footprints (carbon, water and waste) of retailers for the last calendar year are calculated by the tool.

2.1.2 Review process

- Two people review the data in a parallel process which provides for checks on accuracy of the data input, the calculations performed, the overall results, and

supporting analysis and interpretation of the results. In the first instance the same overall result must be obtained for verification, failing which the data and calculations will be discussed in detail to determine the cause of the difference and make sure that correct results are obtained.

- The two reviews test and verify different aspects of the data to provide richer analysis.
- Reports and checklists for each retailer are checked for consistency and accuracy in reporting. Individual reports are produced for each signatory and queries raised in interviews directly with each one.
- During the second stage of the review, the reports are compiled to estimate the overall change in footprints for the agreement as a whole.
- Results for the agreement as a whole are produced and checks carried out prior to reporting.

2.1.3 Improvement actions

A long list of improvement actions is available with the SCAP footprint calculator, for the most part these are suitable for scenario modelling. The purpose of the improvement actions is to allow quantification of the environmental benefits, in terms of the footprint reduction for carbon, water, and waste, by switching from conventional methods to improved ways of working for a proportion (or all) garments considered. Those actions for which signatories currently lack supporting data to enable accurate reporting have been omitted from this report.

Improvement actions listed in the SCAP footprint calculator which can be reliably quantified include various actions to introduce sustainable fibres by substituting conventionally produced fibres (including cotton, polyester, viscose, and polyamide / nylon) with:

- BCI cotton
- Organic cotton
- Cotton Made in Africa
- Recycled polyester
- Lyocell
- Recycled polyamide / nylon.

When claiming that such an improvement has been made, it is important that the signatory has available supporting data and a route to verify the claim. Membership of an appropriate certification scheme is preferable, and at the least, there should be available information about the supply chain for the garments using sustainable fibres.

Further improvement actions include changes after the primary use phase, including:

- Increasing UK reuse of pre-owned garments by taking action leading to an increase in second hand sales

  To increase UK reuse, a specific interpretation has been used. Promotional and marketing activity to encourage second hand sales has been excluded from reporting due to the difficulties in attributing change directly to campaigns activity. However, customer returns which are then able to be

resold (e.g. one retailer resells garments through a staff shop) are included in this report.

- Increasing collection for reuse / recycling

  Increasing collection for reuse / recycling by the retailers has been tracked for the last three years and quantities going to direct reuse are compared to other routes lower on the waste hierarchy. This information is included against the waste footprint of clothing.

- Providing hire and repair services to keep clothes in use for longer

  At present, hire and repair services have not been included in reports; however, repair services are likely to be eligible provided the garments being repaired can be readily identified and their nature, and the quantities involved, is known.

More information is becoming available on the specific impacts that occur during production, making it possible to claim savings from supply chain actions. So far, the footprint calculator has included improvement actions for replacing conventional dyeing techniques:

- Cold pad batch replaces conventional dyeing of natural fibres
- Dope dyeing, or solution dyeing techniques, replace conventional dyeing of synthetic fibres.

2.2 Reporting process for recyclers and reuse organisations

2.2.1 Data preparation and data entry creates footprint data for each signatory

- Signatories mine data from internal databases, including financial systems and stock inventory systems.
- Data requirements include the total quantity of incoming items (and the proportion of that which is clothing); and the onward fate of the clothing. Additional data for input include on-site energy used (in kWh) and water used (in m^3), from utility bills; and fuel use or estimated fuel use for incoming items.
- Notes are kept on methods of gathering data, any calculations or assumptions that have been made including scaling methods and other gap filling, so that consistent methods can be used in future reporting.
- Data are input to the tool by signatories with advice from WRAP where requested. The footprints (carbon, water and waste) of recyclers and reuse organisations for the last calendar year are calculated by the tool.

2.2.2 Review process

- Reports are received and compiled into a file for analysis and checks are carried out for completeness, consistent methods to previous years, that the results are reasonable and pass an initial 'sense check', and that the correct units of analysis have been used.
- An internal audit provides for checks on accuracy and on the supporting analysis and interpretation of the results. In the first instance the same overall result must be obtained to provide a verified match. Failing that, the reports received and

supporting information are examined to determine the cause for any difference and adjustments are agreed before being applied to the final result.

2.3 Timeline

Table 1: Outline of the reporting schedule 2018

Q1 March-June	Q2 July-September	Q3 October-December
SCAP signatory fibre and footprint calculations provided using the SCAP tool Supporting information provided to WRAP	Individual reports produced for each signatory QA process carried out and complete Progress report produced for the SCAP Steering Group	Results finalised Dissemination through SCAP conference Written report finalised and submitted for approvals

2.4 Waste footprint methodology

The review and internal audit this year has included an assessment of the effect on the waste footprint of moving clothing further up the waste hierarchy due to the efforts of SCAP recycling and reuse signatories. This additional analysis was discussed by the Metrics Working Group in a breakout session which found that actions to reduce waste and increase recycling and reuse were so far not being recognised adequately by SCAP.

The previous cautious approach in modelling the effects of retailer action was intended to avoid double-counting, but this had resulted in omitting some savings due to clothing reuse from the results. The use of recycled polyester and recycled nylon materials were actually calculated to increase waste, due to the use of non-textile input materials, and an increase in waste from fibre production using these inputs. At the same time, actions to increase reuse through second hand sales or by collecting clothing for reuse and recycling were not calculated to reduce the waste footprint even where waste prevention could be shown to have occurred.

In response, a review of the methodology for measuring the waste footprint was carried out in 2017. The definition of the waste footprint used was reviewed and it was noted that all material discarded at the end of the first use phase and during the supply chain was considered waste. This included textiles discarded and subsequently reused or recycled at the end of their primary use phase but there is an exception of co-products, which are not treated as a waste. Two actions were agreed:

1. The method for assessing reduction in the waste footprint should include all activities within SCAP and therefore the contribution of the recyclers and reuse organisations should be included within scope.
2. Additional information is needed to fill gaps in available data on textiles and clothing supply chain waste and in particular, about the nature and quantities of waste occurring in different processes from the production of fabric to the final garment.

A questionnaire about supply chain waste has been developed and data gathered will help with the second action.

The first of these actions is given attention in this report. A methodology was provided for including waste reduction from recycling and reuse organisations; however, a number of data limitations were encountered and must be dealt with if this approach is to be successful.

Data is requested from all SCAP recycling and reuse signatories about the quantity of clothing received, the activities that use energy and water to sort, process, and distribute these garments on-site and off-site, and the onward fate of garments. This data is used to calculate carbon, water, and waste footprints for the cradle-to-grave life cycle of the garments handled by each of the recycling and reuse organisations. Some of the organisations sell garments to each other for further sorting and so the reports cannot be combined (to avoid double-counting between them). It is not known which organisations sell to which.

Organisations are asked to provide a description of their business with their SCAP report, and it seems a reasonable assumption that charity recyclers do not sell garments to each other. The reduction in the waste footprint of garments handled by charity recyclers has been calculated by comparing direct sales for reuse in the UK by these organisations, to the total waste remaining. The quantity that remains as waste is taken to include the combined quantity of clothing sent by the charity recyclers for recycling to lower grade uses including garments sold overseas, transfer to other recycling organisations, as well as incineration / energy from waste and landfill.

3.0 Reports from SCAP signatories

3.1 Reports from SCAP retailers and brands

Ten of the 13 SCAP retailers completed reports in 2017. One further retailer provided data but was unable to confirm final figures and their report remained in draft. Their finalised report from the previous year was used to gap fill. One new organisation reported for the first time. Four organisations who had left the agreement were no longer included, that had been included in the last report.

The total quantity of fibres reported reduced slightly by 1.2% in 2017 compared to the previous year's reporting, down from 357,000 tonnes to 353,000 tonnes. Improved fibres increased by 10% during the same timeframe, up to 45,000 tonnes from 42,000 tonnes. There is still significant room for improvement and for further take up of a wider range of actions.

3.2 Reports from SCAP recycling and reuse organisations

15 of the 20 signatories who are recycling and reuse organisations provided reports to SCAP overall, although there remain data gaps for some organisations for some years.

Charity recyclers accounted for over 40,000 tonnes of garments handled in 2017, compared to total incoming clothing of over 150,000 tonnes across all the reuse and recycling organisations. The total of 150,000 tonnes includes double-counting and so the real total is less. This report uses the data from the charity recyclers to mitigate this risk.

4.0 Footprint results

4.1 Summary footprint results

SCAP targets are to achieve a 15% reduction in the carbon and water footprints of garments, per tonne, by 2020, a 15% reduction in total clothing waste to landfill and incineration in the UK, and a 3.5% reduction in the waste footprint of garments from SCAP signatories. Table 2 provides the level of change in carbon, water, and waste footprints from 2012 to 2017. 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, and the absolute footprint reduction is given in the final column, affected by a decrease in sales. Reduction in waste from garments received by charity recyclers between 2015 and 2017 is also provided as an indication of progress against the waste footprint.

Table 2: Percentage and absolute footprint reduction from 2012 to 2017 per tonne of garments based on SCAP retailers' sales

Footprint per tonne	Targets	2012-2017 % reduction per tonne	2012-2017 total reduction tonnes
Carbon per tonne (t CO_2e)	-15%	-11.9%	-1,374,000
Water per tonne (m^3)	-15%	-17.7%	-535,900,000
Waste per tonne (tonnes)	-3.5%	-1.1%	N/A

Figure 2: SCAP retailers' carbon and water footprints per tonne of garments, from 2012 to 2017

Figure 1 below shows gradual improvement in percentage reduction of carbon and water footprints compared to the dashed target line. While the water target has been met, further action is needed to meet the carbon target, and the waste footprint target continues to look extremely challenging.

Figure 1: Percentage reduction in SCAP retailers' carbon and water footprints per tonne of garments, compared to targets, from 2012 to 2017

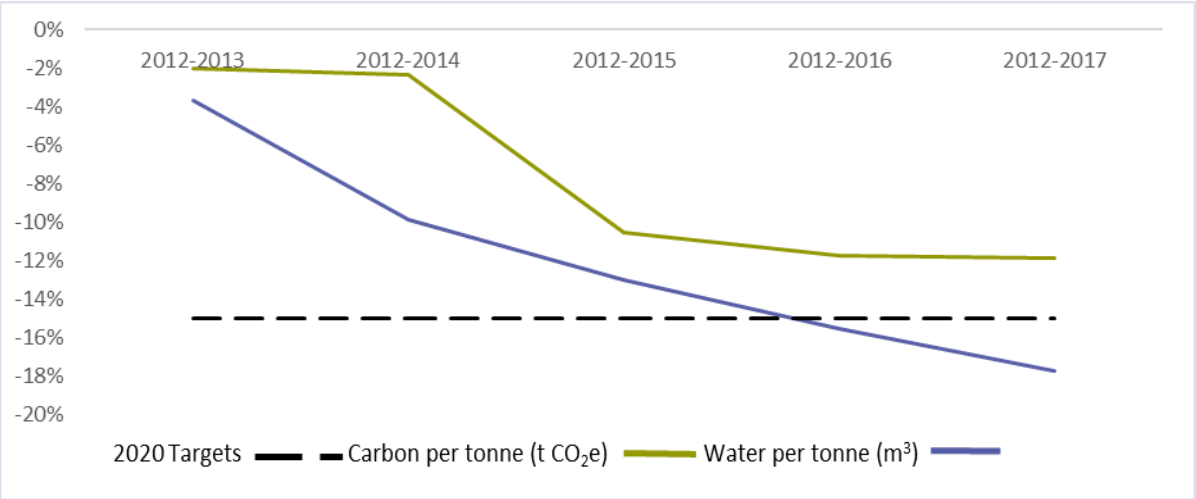


Figure 2: SCAP retailers' carbon and water footprints per tonne of garments, from 2012 to 2017

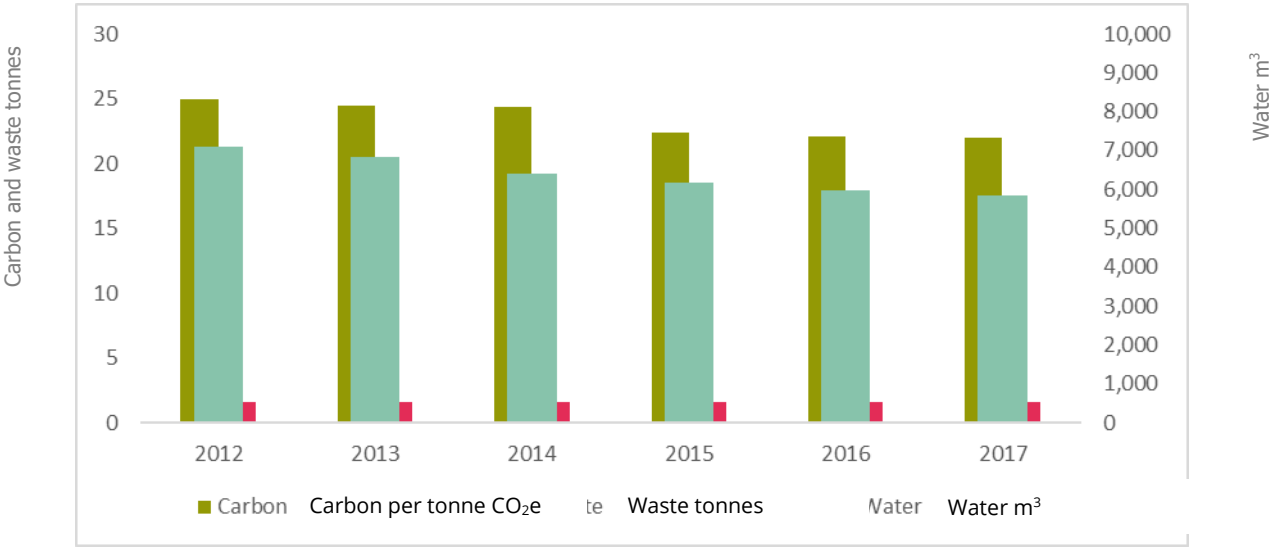


Figure 2 shows year-on-year carbon and water footprints per tonne of garments since 2012. The water footprint is on the right-hand vertical axis, the carbon footprint on the left.

4.2 Carbon footprint reduction

Figure 3 shows total carbon footprint of garments sold by SCAP retailers in 2017, 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, are all important.

Figure 3: Carbon footprint of garments sold by SCAP retailers in 2017, showing the footprint by life cycle stage and main fibre type

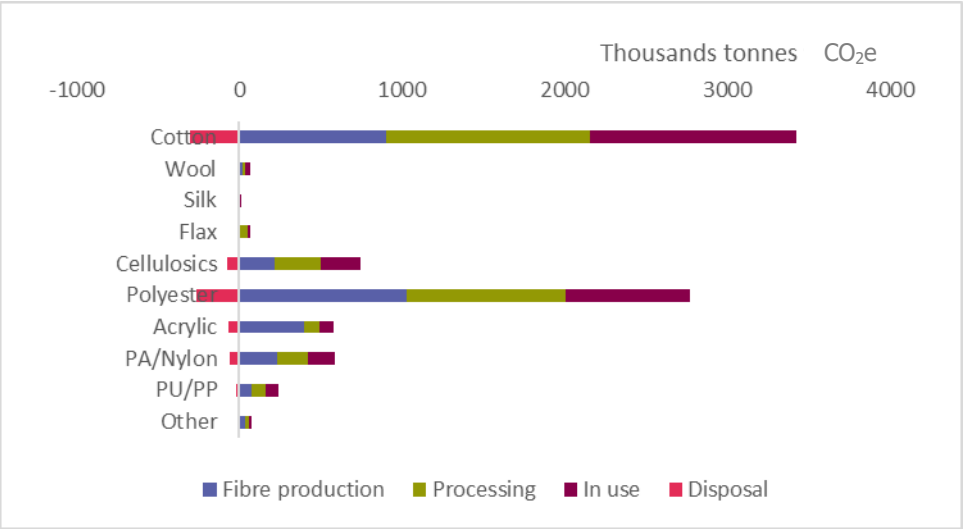
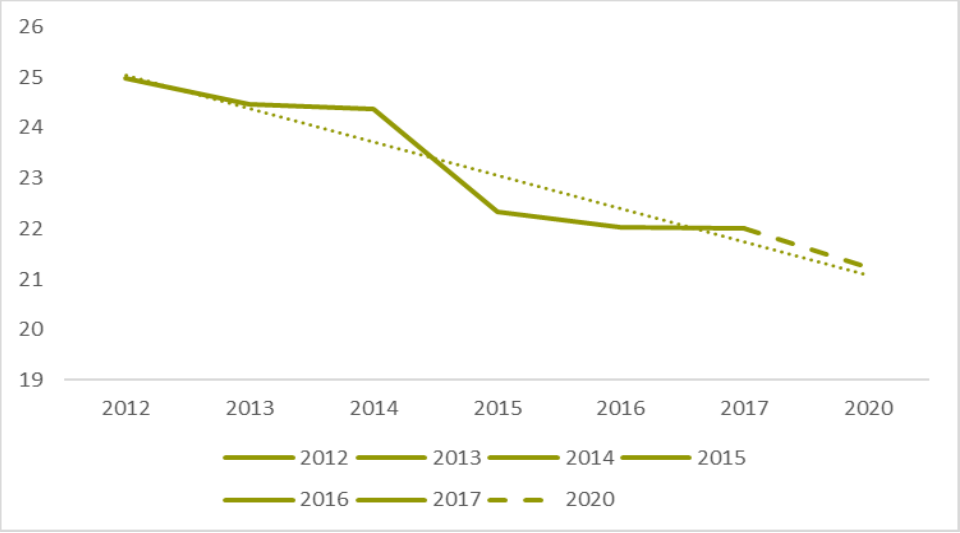


Figure 4 indicates the potential for the rate of carbon footprint reduction to achieve the original 2020 target of a 15% reduction. The carbon footprint of garments sold by SCAP retailers reduced, on average, by 11.9% between 2012 and 2017. A variety of explanations can be found (see section 5.0) linked to background change and also to improvement actions taken by signatories.

Figure 4: Carbon footprint compared to on-target trajectory 2012 extending out to 2020



The 'on-target trajectory' is represented by the final dashed line, while the trajectory of the carbon footprint of SCAP retailers' garments is shown by the dotted line, based on an estimate of central tendency. The trajectory currently is to finish just below the minimum target, i.e. for the target to be met, but there is a risk that it will not be, particularly without further improvements both in terms of actions taken and background conditions.

The figure excludes further reductions due to external factors which are due to be added before next year's reporting. These include the carbon factors for national grid

electricity production and any further changes to use phase energy consumption during laundry. Both sets of factors may be predicted to contribute to reducing the carbon footprint as was the case in 2014-2015. However, this does not allow for negatively contributing external factors such as the gradual trend towards synthetic fibres which will likely increase carbon per tonne of garments, and the risk that clothing lifetimes will reduce before 2020.

4.3 Water footprint reduction

Figure 5: Water footprint of garments sold by SCAP retailers in 2017, showing the footprint by life cycle stage and main fibre type

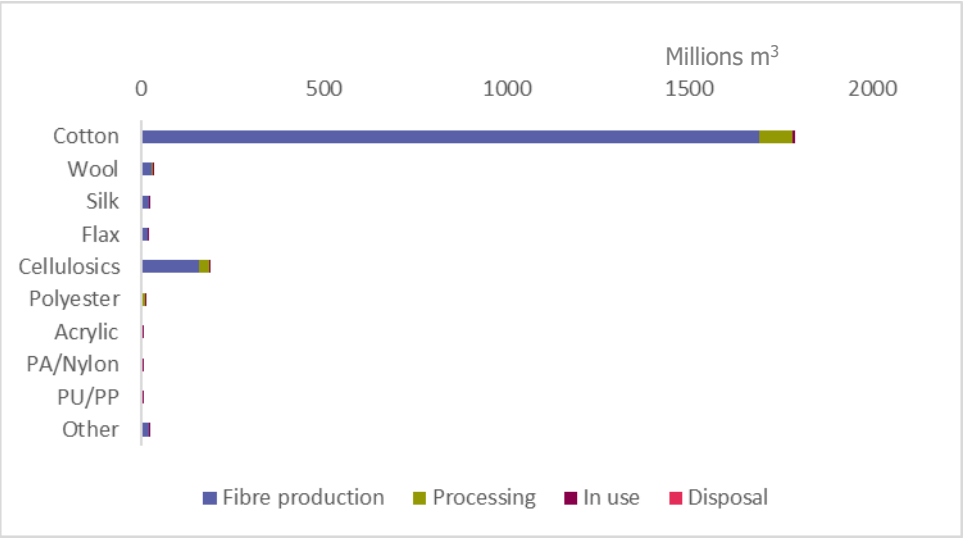


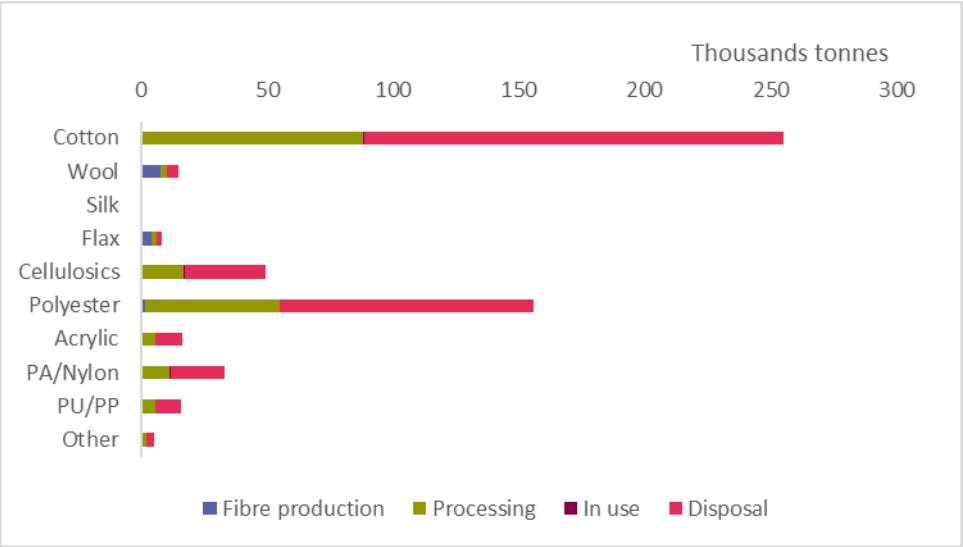
Figure 5 shows the total water footprint of garments sold by SCAP retailers in 2017. The greatest impact occurs in cotton fibre production, and this remains where the greatest potential for further water footprint reductions exists, although viscose fibre production is also significant. Other opportunities such as improved dyeing techniques would provide further reduction.

The water footprint of garments sold by SCAP retailers reporting for 2017 reduced by 17.7% since 2012. So far, the switch to more sustainable cotton has driven water footprint reduction, as well as reduction in natural fibres (see section 5.0).

4.4 Waste footprint reduction

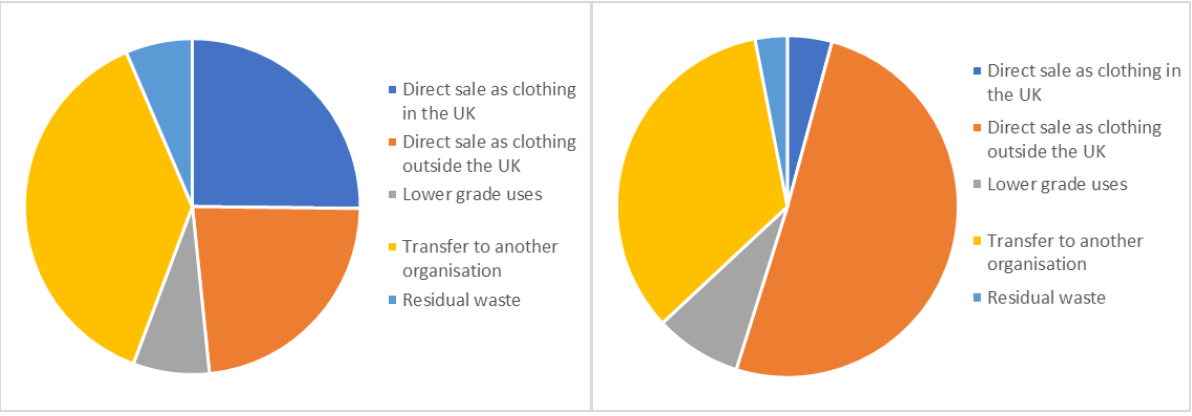
The waste footprint from garments sold by SCAP retail signatories is provided in Figure 6. The waste footprint includes garments disposed at the end of the primary use phase as well as disposal from supply chain processes, based on existing data sources. This has reduced by 1.0% between 2012 and 2017. Retailer action to reduce the waste footprint from supply chain processes is currently investigating where there is waste and what actions are required via a questionnaire direct to suppliers.

Figure 6: Waste footprint of garments sold by SCAP retailers in 2017, 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 further 1.1% 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. In some cases, the charity recyclers are the same organisations who manage the retailers' reuse & recycling activities and so the two results are not added together. Any supply chain waste indicated in Figure 6 from the processing phase would be additional, however, at present the two sets of results are presented separately while evidence gathering to fill gaps about waste in the garment supply chain is ongoing.

Figure 7: The onward destinations of clothing redistributed by charity recyclers (on the left) and textile recyclers (on the right) in 2017



The quantity going to reuse in the UK has reduced, but it has increased as a proportion of all onward destinations. The quantity going to other routes in total has reduced further than the quantity going to reuse. The findings are presented in Table 3 and a

summary of onward destinations for clothing from charity recyclers is illustrated in Figure 8, showing change from 2015 to 2017.

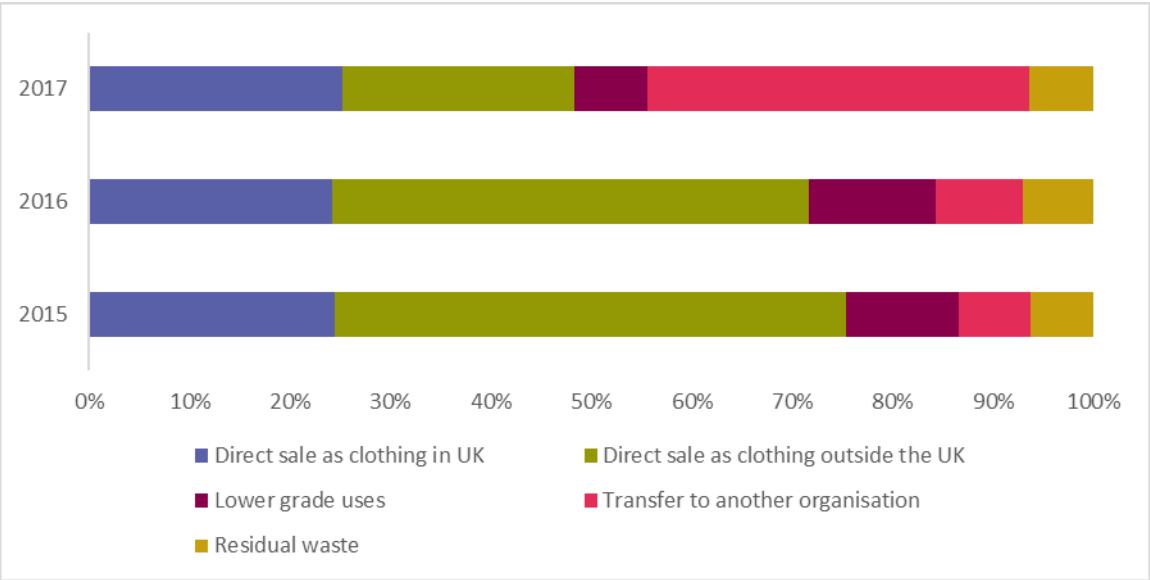
Table 3: Quantities and percentages of clothing handled by charity recyclers and sold in the UK, compared to clothing going to other routes, 2015 – 2017

	Quantity going to reuse in the UK	Reuse as a % of all material	Other routes	Waste as a % of all material	Implied waste reduction per tonne of clothing
2015	11,300	24.1%	47,000	75.9%	
2016	10,800	24.1%	44,600	75.9%	
2017	10,600	25.2%	42,200	74.8%	-1.1%

A number of data limitations remain:

- Data gaps in 2012 – 2014 were too significant to backfill since assumptions would largely have governed the results. The new methodology has therefore been applied since 2015 only.
- Charity recyclers 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 recyclers 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, however a closer examination of data received showed that one charity recycler had reported a large quantity in 2017 being transferred to a preparation for reuse organisation, where previously the same recycler had reported direct sale or lower grade uses. This accounted for much of the change in onward destinations reported by charity recyclers between 2016 and 2017.

Figure 8: Onward fate of clothing handled by SCAP charity recyclers 2015 – 2017



To mitigate data limitations, continued efforts in collecting reports from recycling and reuse organisations is needed, to minimise remaining gaps. Clothing distributed outside the UK, either directly by the charity or following transfer to another organisation, remains an area where there is not enough information. Additional work could be done to better understand what happens to clothing once it leaves the UK, however this is outside the scope of the SCAP data review.

5.0 Explanation of the results

Two main drivers for change in the last two years are changes in the fibre composition of garments included in reports; and improvement actions taken.

5.1 Fibre composition

The fibre composition of garments sold by SCAP retailers is shown in Figure 9. Cotton use increased slightly in 2017 although overall it has reduced since 2012. Cotton remains by far the most popular fibre type in garments sold by SCAP retailers, with polyester and regenerated cellulosic fibres (viscose) also widely used. Other fibre types are less prevalent.

Overall the trend has been towards synthetic fibres with a reduction in the use of natural fibres (Table 4). Increased use of synthetic fibres has the effect of increasing carbon footprint per tonne of garments and reducing the water footprint. Other background changes included in the footprint model used over time have had the opposite effect on carbon, helping to reduce it. These include reduced washing temperatures and drying frequency by consumers in the use phase, as well as decarbonisation of electricity used.

Figure 9: Fibre composition of garments sold by SCAP retailers, on average, each year from 2012 to 2017

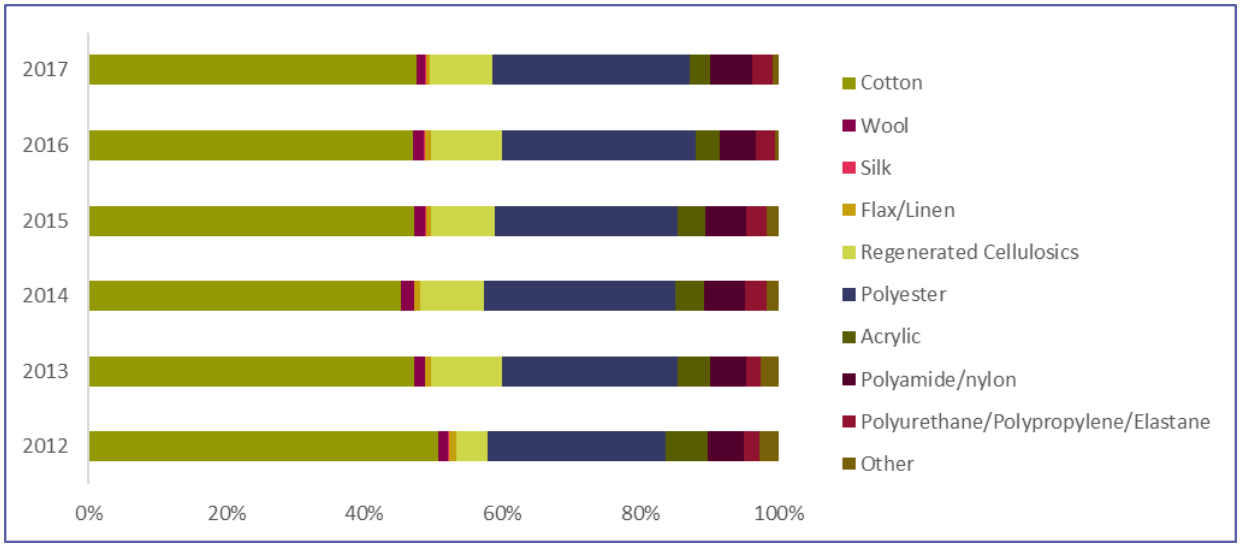


Table 4: Fibre composition of garments sold by SCAP retailers, on average, each year from 2012 to 2017, and percentage increase in use of each fibre type

Fibre type	2012	2013	2014	2015	2016	2017	% increase
Cotton	50.7%	47.2%	45.4%	47.2%	47.0%	47.5%	-3.2%
Wool	1.5%	1.5%	1.8%	1.7%	1.6%	1.3%	-0.1%
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%	-0.4%
Regenerated Cellulosics	4.7%	10.3%	9.2%	9.2%	10.3%	9.1%	4.5%
Polyester	25.7%	25.4%	27.8%	26.5%	28.0%	28.6%	2.8%
Acrylic	6.1%	4.6%	4.2%	4.1%	3.4%	3.0%	-3.1%
Polyamide/nylon	5.4%	5.3%	6.0%	5.9%	5.3%	6.1%	0.8%
Polyurethane/Polypropylene/Elastane	2.2%	2.1%	3.2%	2.9%	2.8%	2.8%	0.7%
Other	2.7%	2.5%	1.6%	1.7%	0.4%	0.9%	-1.9%

5.2 Improvement actions

An increase in claimed improvement actions is shown in Table . 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. The number of types of improvement action taken by at least one retailer each year is provided in the last row.

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

	2017	2016	2015	2014	2013	2012
Conventional cotton to BCI cotton	10	8	7	6	5	0
Conventional cotton to organic cotton	8	7	6	7	6	4
Conventional cotton to CMiA cotton	3	3	0	0	0	0
Virgin polyester to recycled polyester	7	6	5	6	5	3
Viscose to lyocell	11	10	5	4	4	2
More UK reuse of pre-owned garments	1	0	0	0	0	0
Increase in collection for reuse/recycling	3	7	9	5	1	1
Hire and repair services dematerialise retail sales	0	0	0	0	0	0
Virgin polyamide / nylon to recycled polyamide / nylon	2	0	0	0	0	0
Conventional dyeing to dope dyeing of synthetic fibres	1	0	0	0	0	0
Conventional dyeing to CPB dyeing of natural fibres	0	0	0	0	0	0
Number of improvement actions taken	9	6	5	5	5	4

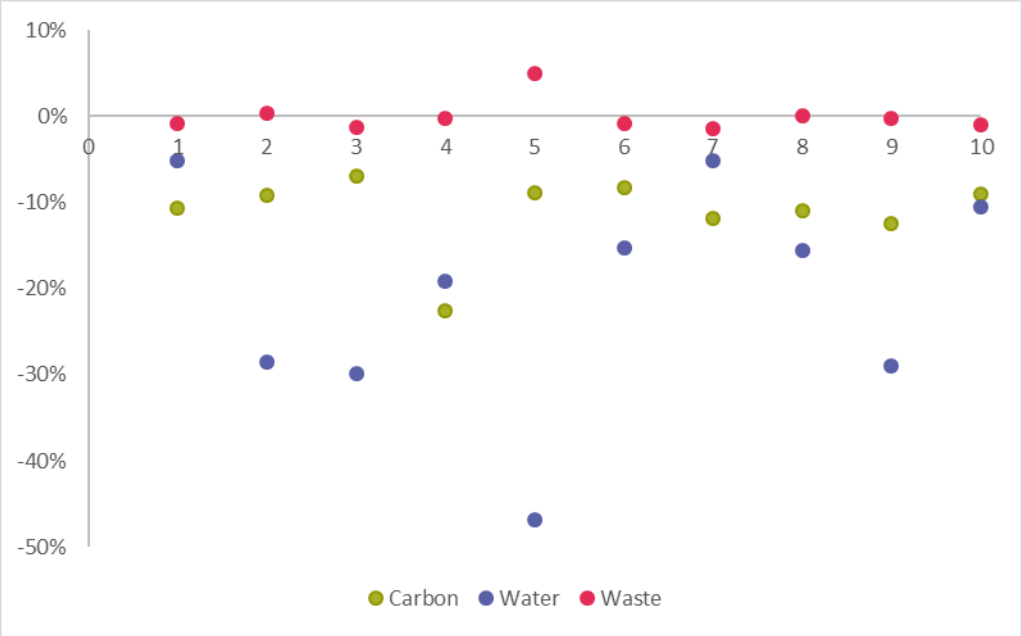
The percentage of improved fibres has continued to increase over time. Sustainable cotton now makes up over 27% of cotton sold (Table 6). This would increase to 30% if we add data from one SCAP retailer not included in this report because their footprint report was not confirmed.

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

	2012	2013	2014	2015	2016	2017
BCI cotton	0.0%	7.2%	13.5%	14.8%	25.2%	27.1%
CMiA cotton	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
Organic cotton	0.0%	0.0%	0.2%	0.0%	0.0%	0.1%
Recycled polyester	0.0%	0.0%	0.4%	0.0%	0.1%	1.1%
Lyocell	0.1%	0.0%	0.0%	0.1%	0.7%	3.1%
Recycled nylon	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Figure 10 provides comparative carbon, water, and waste footprints of SCAP retail signatories whose 2017 reports were used. Each report has been reviewed, fed back to the individual retailer, and discussed.

Figure 10: Comparative carbon, water and waste footprints of anonymised SCAP retail signatories



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.

A limited number of retailers have been able to achieve water footprint reductions greater than 20%. The main driver for water footprint reduction by retailers showing better results was switching away from cotton to synthetic fibres, or away from a mix of natural fibres towards a fibre mix that is more strongly synthetic. The large proportion of more sustainable cotton reported by a small number of retailers has started to have a noticeable effect, to the extent that this switch to more sustainable cotton was starting

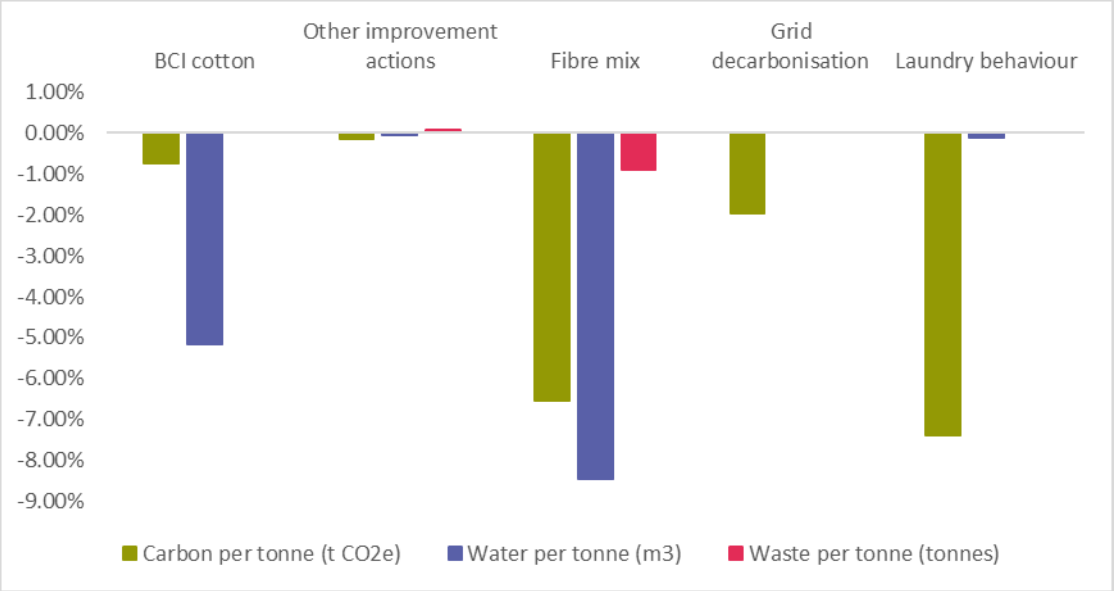
to outweigh the background changes, i.e. the change in the conventional fibre mix was less important to the result than the switch to improved fibres.

Figure 11 provides findings from a contribution analysis of the separate effects of factors influencing the results in 2017. 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. Changes to the model made in 2015 to update energy and electricity grid impact factors, and to update laundry behaviour factors, were also modelled separately.

The analysis found that changes in fibre mix shown in Figure 9 and Table 4 had the largest effect in reducing the water footprint, while laundry behaviour (lower washing temperature and frequency, as well as less tumble drying) reduced the carbon footprint.

BCI cotton replacing conventional cotton accounted for a 5% reduction in water footprint and 0.7% reduction in carbon footprint. Other improvement actions had only a slight effect on all three of the indicators. A greater number of retailers reported taking a broader range of improvement actions in 2017. Despite this, the proportion of conventional fibres replaced by improved fibres remains small, with the exception of BCI cotton, and this accounts for the relative scale of contribution to footprint reduction.

Figure 11: Findings from a contribution analysis of factors affecting the results between 2012 and 2017



6.0 Conclusions and recommendations

Overall the review of SCAP reports has been able to confirm that a combination of changes since 2012 have met the 2020 water target. The most important changes since 2012 for the water target have included a reduction in cotton and other natural fibres in the fibre mix (comparing the same retailers to get a like-for-like comparison); and

recently, greater use of improved cotton in garment production. The water footprint of clothing sold by SCAP retailers had reduced by 17.7% by 2017 relative to 2012.

The carbon footprint target has not yet been achieved as a reduction of 11.9% was found, and further progress is needed to meet it. Without further adoption of improvement actions, signatories are likely to undershoot the current trajectory (which would just meet the 15% reduction target by 2020) .

Recommendations to reduce the carbon footprint of garments sold in the UK include a range of actions targeting the supply chain:

- Increase use of improved fibres including cotton fibres bought with the Better Cotton Initiative, Organic cotton, Cotton Made in Africa, and Cotton Connect.
- Increase 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, including mechanically recycled polyester and chemically recycled nylon.

Recommendations to further reduce the carbon footprint of garments in future include

- Increase the number of garments sold directly second hand in the UK.
- Look into new business models such as clothing hire, repair services and pilot/implement where possible.
- Closed loop recycling of garments either using chemical or mechanical processes.

Waste has been reconsidered in this report and waste prevention due to the activities of the recycling and reuse organisations has been included within scope for the analysis. A small reduction in waste of 1.1% was measured, focused on reuse of garments in the UK. While it is possible to say that SCAP charity recyclers increased reuse in comparison to other destinations lower down the waste hierarchy between 2015 and 2017, several 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. In a separate analysis, the waste footprint from garments sold by SCAP retail signatories is estimated to have reduced by 1.0% between 2012 and 2017; this figure cannot be added to the waste reduction associated with charity sector reuse.

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