

A woman with long blonde hair, wearing a black wide-brimmed hat and a red halter-neck dress, is looking off to the side. She is standing on a large, messy pile of discarded, crumpled clothing in various colors. The background is a solid light pink color. The text "TIMEOUT FOR FAST FASHION" is overlaid in white, bold, sans-serif font across the middle of the image.

**TIMEOUT FOR FAST FASHION**

**GREENPEACE**

## The rise of fast fashion

Sales of clothing have nearly doubled from 1 Trillion Dollars in 2002 to 1.8 trillion dollars in 2015, projected to rise to \$2.1 trillion by 2025

Clothing production doubled from 2000 to 2014  
The number of garments exceeded 100 billion by 2014

The average person buys 60 percent more items of clothing and keeps them for about half as long as 15 years ago

Global trade in used clothes reaches 4.3 million tonnes, many are unlikely to be worn again.

Since 2000 there has been an “explosive expansion” in fast fashion, led by the brands H&M and Zara



1995

2000

2015

2025

# Timeout for fast fashion

## The rise in the production and consumption of fast fashion

Fast, cheap fashion has changed the way we dress; it has also changed the way we think about clothes and what we do with them. We buy more clothes than ever before, we wear them fewer times - sometimes they are not worn at all - and while our wardrobes are cluttered with rarely used clothes, we are also treating clothes as disposable items. Fashion has become a novelty and the commercialisation and marketing of fashion is leading to overconsumption and materialism - keeping our clothes and cherishing them is not in fashion any more.

Fashion retailers have been speeding up the turnaround of fashion trends since the 1980's, increasing the rate that we use and throw away clothes - the life cycles of consumer products shortened by 50% between 1992 and 2002.<sup>1</sup> But today's fast fashion phenomenon really started at the turn of the century, with an even quicker turnaround of new styles achieved by brands like Zara and H&M, which have both shown an “explosive expansion” since 2000 to become the largest clothes retailers in the world.<sup>2</sup> The “fast fashion” promoted by these and other brands leads to increased consumption of all clothes, including budget and basic items.<sup>3</sup>

## Rising sales, rising volumes

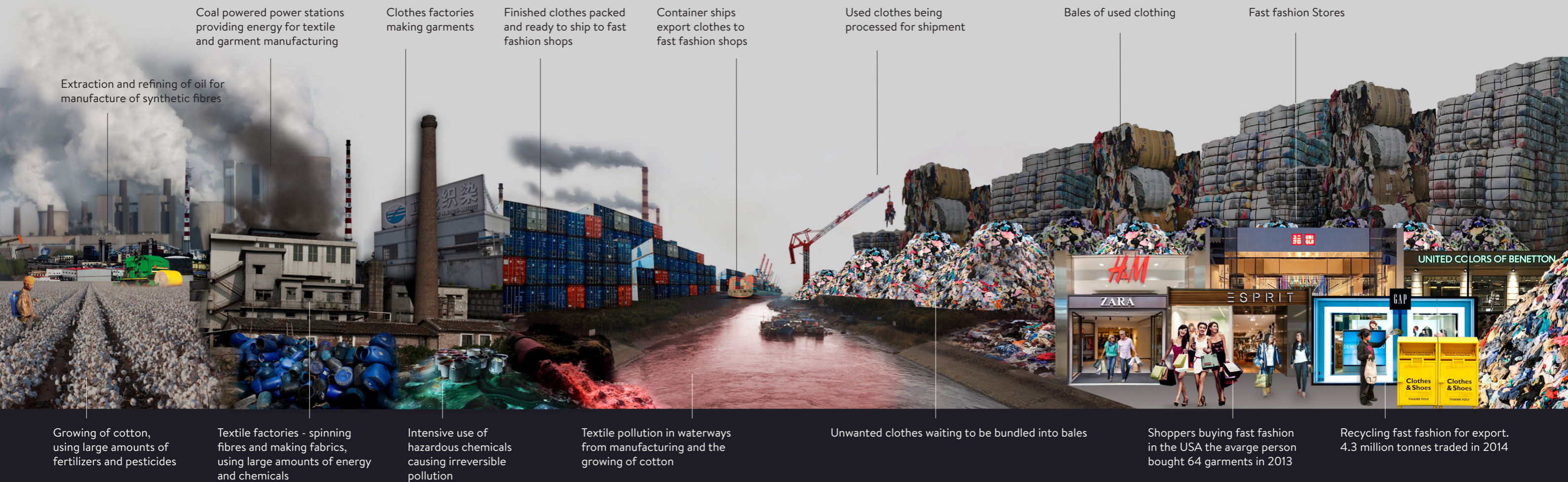
The volume of clothes being consumed is increasing the impact of the textiles industry - already one of the

biggest polluters. People in developed countries today own many more items of clothing than they can actually wear and with China and India following this dangerous trend, the absolute quantities of clothing consumed could rise even further.

While in 2002 sales of clothing were worth \$1 trillion, this has risen to \$1.8 trillion by 2015 - and is forecast to rise further to \$2.1 trillion by 2025.<sup>4</sup> This represents huge volumes of material - clothing production doubled from 2000 to 2014. The average person buys 60 percent more items of clothing and keeps them for about half as long as 15 years ago.<sup>5</sup> It's not surprising that this overconsumption is spread unevenly across the world; the average person in North America bought 16 kg of new clothes in 2014 - the equivalent of 64 T-shirts or 16 pairs of jeans<sup>6</sup> - compared to only 2 kg per person in the Middle East/Africa.<sup>7</sup> People in China are already consuming 6.5 kg per person - above the global average of 5 kg/person - which could increase to anywhere between 11 and 16 kg per person by 2030.<sup>8</sup> Even if the amounts per person remain the same, increases in the population of countries such as China and India mean that the absolute quantities of clothing will continue to rise.

The fast fashion trend is amplified by the faster growth in sales of clothing online, which in the US is expected to grow at a rate of 17.2% in 2016 - 17.<sup>9</sup> China overtook the USA as the world's largest digital market in 2014, with fashion the biggest e-commerce category.<sup>10</sup> The ease of shopping online for clothes is likely to increase the number of purchases made and fuel the turnover of fast fashion.<sup>11</sup>

## Fast fashion: From dirty production, to trends, to trash



Growing of cotton, using large amounts of fertilizers and pesticides

Textile factories - spinning fibres and making fabrics, using large amounts of energy and chemicals

Intensive use of hazardous chemicals causing irreversible pollution

Textile pollution in waterways from manufacturing and the growing of cotton

Unwanted clothes waiting to be bundled into bales

Shoppers buying fast fashion in the USA the average person bought 64 garments in 2013

Recycling fast fashion for export. 4.3 million tonnes traded in 2014

### Environmental concerns - why detoxing textiles is crucial but not enough

Our consumption of fast fashion is pushing at the boundaries of the Earth's capacity to absorb greenhouse gases, hazardous chemicals and clothes waste as well as depleting resources such as water and land. On any level, this cannot be sustained.

**“Fast fashion is now a large, sophisticated business fed by a fragmented and relatively low-tech production system. This system has outsize environmental effects: making clothes typically requires using a lot of water and chemicals and emitting significant amounts of greenhouse gases. Reports also continue to emerge about clothing-factory workers being underpaid and exposed to unsafe—even deadly—workplace conditions ...”**<sup>12</sup>

To compete in the ongoing race to make and sell clothes that are ever cheaper, the textile industry has relocated to countries with low labour costs and inadequate regulations. Despite regular media attention and NGO campaigns, suppliers in those countries are being pushed beyond their limits, with significant environmental and social impacts, such as the poisoning of rivers with hazardous chemicals, unacceptable working conditions and the use of child labour.

Since 2011, Greenpeace's Detox campaign has been challenging this environmental toll and has gathered support from 78 companies, including fashion brands, large retailers and textiles suppliers, to achieve greater transparency and zero discharges of hazardous chemicals in their supply chain manufacturing by 2020. Imports of clothes from countries with no regulation on nonylphenol ethoxylates (NPE) have been found

to be contaminated by these hazardous chemicals that are likely to be completely removed during washing throughout the lifetime of the garment, and have the potential to enter the aquatic environment. For UK alone, it was calculated that they could have accounted for up to 173kg of NPE emissions to the water environment in 2011.<sup>13</sup> This chemical is being progressively eliminated by companies committed to Detox. However, if the trend for more and cheaper clothes continues, any gains that are made on eliminating hazardous chemicals will be outstripped by higher rates of production and consumption in the industry as a whole.

High energy use is another reason why “the textile industry is considered one of the most polluting in the world”.<sup>14</sup> The purchase and use of clothing contributes about 3% of global production CO2 emissions or over 850 million tonnes (Mt) of CO2 a year, from the manufacturing, logistics and usage such as washing, drying and ironing).<sup>15</sup>

Fast fashion expansion wouldn't be possible without the rising use of polyester, which is relatively cheap and easily available and is now used in 60% of our garments; in 2016 about 21.3 million tonnes was used in clothing, an increase of 157% from the amount used in 2000, which was about 8.3 million tonnes.<sup>16</sup> Reliance on polyester is increasing the environmental impacts of fast fashion – when the fossil fuels for polymer production are taken into account, emissions of CO2 for polyester in clothing, at 282 billion kg in 2015 - are nearly 3 times higher than those for cotton, at 98 billion kg.<sup>17</sup> Polyester is also not easily degradable; synthetic microfibres are released from clothes when they are washed, eventually making their way into rivers and seas, where they can potentially take decades to degrade. Microfibres can have a range of impacts once they reach the aquatic environment, such as impacts on feeding activity,<sup>18</sup> or carrying invasive bacteria that can be harmful to humans.

## Today's trends are tomorrow's trash

Estimates suggest that as much as 95 percent of the clothes thrown out with domestic waste and could be used again—re-worn, reused or recycled—depending on the state of the textile wastes.<sup>20</sup>

Instead, the vast majority are thrown out with our household waste and end up in landfills or incinerators. Worldwide, millions of tonnes of textiles waste is either landfilled or incinerated; not only is this a huge waste of all of the resources in these products but it creates yet more pollution, through emissions of hazardous chemicals and greenhouse gases from incinerator stacks or landfills.

Up to date and comprehensive figures on the volumes of clothes waste and used clothing globally are not compiled. This lack of standardised information shows limited interest by policymakers and a lack of transparency from the fashion industry about its use of resources and the amounts wasted. In the EU 1.5-2 million tons of used clothing is generated annually, only 10-12% of the best quality clothes are re-sold locally and much of the rest is likely to be exported to countries in the Global South. Figures from the EU as a whole are not available but in the UK 70% of the 540,000 tonnes of clothes that are collected for re-use are exported; in the USA 53% (800,000 tonnes) is exported.

The export of used clothing has risen dramatically since the year 2000, with 4.3 million tonnes traded in 2014. The leading exporters are the USA, Germany, the UK, South Korea, Japan, Netherlands, Malaysia, Belgium, China and France<sup>21</sup> and the main importers include Pakistan, Malaysia, Russia, and India, although these may not be the final destinations.<sup>22</sup> For example, large amounts of used clothes are reprocessed in India and Pakistan and re-exported to Africa.

Whereas in the last century used clothing from Europe and the US used to be high quality and good value, this is no longer the case; much of it is unsaleable due to

poor quality - often associated with the greater use of synthetics and poly/cotton mixes - and re-saleable items are competing with new imported clothing from China.<sup>23</sup> In addition, not all exported clothes are re-used: reports suggest only about 30% of used clothes exported to India are suitable for re-sale, for example, extra large clothes from the US are not re-saleable in Africa. The remainder is reprocessed into yarn for cheap blankets and insulation.<sup>24</sup>

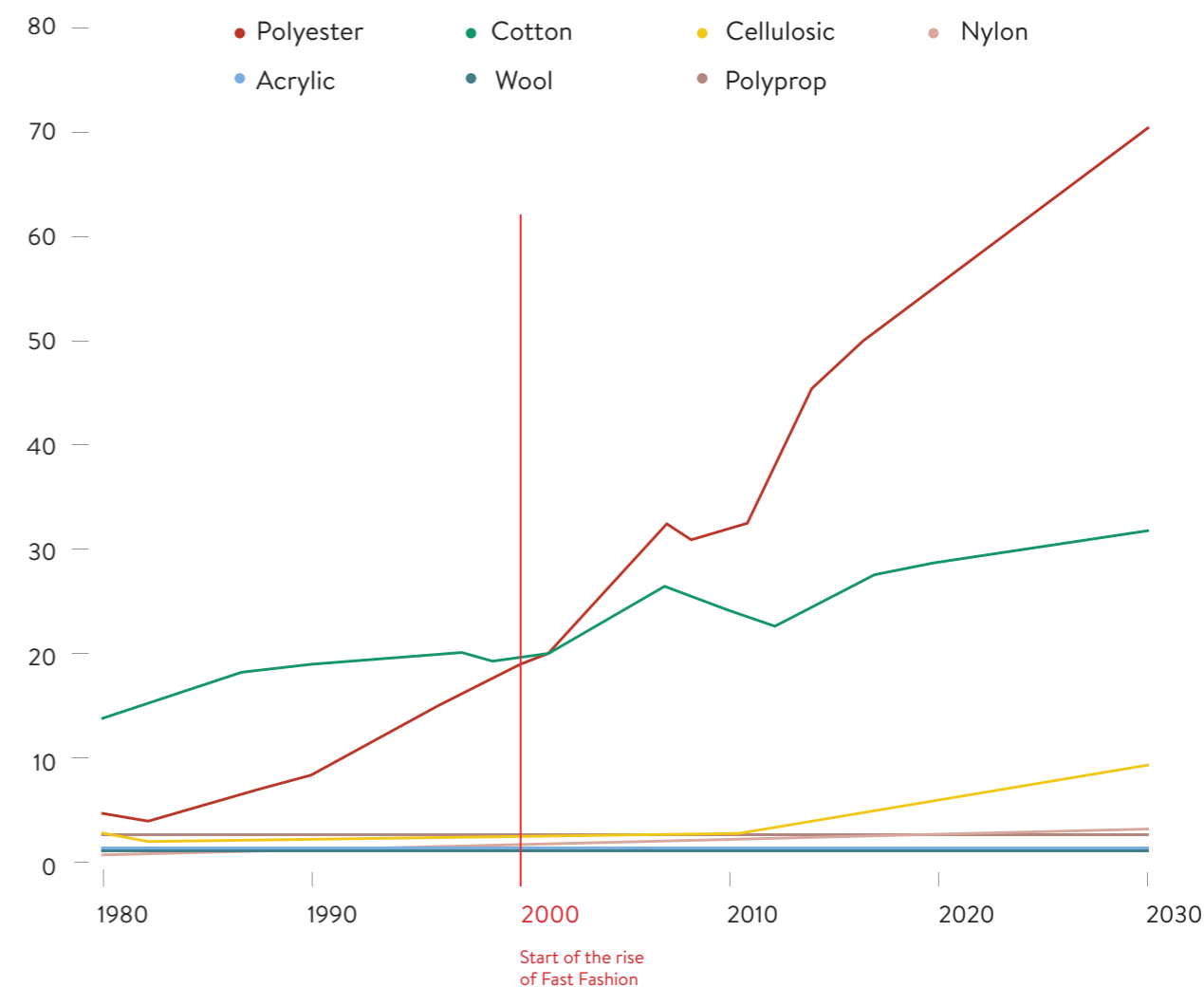
To protect local clothes production and development, among other reasons, 42 countries, mostly in Africa, South America and Asia, have some kind of restriction or ban in place for imports of used clothing and the prospects of a ban by the East African Community countries of Burundi, Kenya, Rwanda, Tanzania and Uganda threatens to impact on exports from the UK.<sup>26,27</sup>

The second hand clothing system is on the brink of collapse,<sup>28</sup> partly due to the poor quality of cheap fast fashion garments, as shown by recent reports from the US. Exports from the UK reached a peak in 2014. According to Alan Wheeler, director of the Textile Recycling Association in the UK **“if clothing quality continues to fall, demand from the international market drops even further and the closed-loop recycling technology doesn't come through, we might have a secondhand clothing crisis. And then there wouldn't be any place at all to take your cheap, old clothes.”**<sup>29</sup>

## The myth of re-use and recycling

So what happens to clothes that aren't being re-used? The number of garments made with polyester/poly-cotton blends has increased the quantities of lower quality clothing used for wiping rags and insulation fibres - half of which is sold for less than the acquisition value. However, this down-cycling is a temporary solution, ultimately these rags and insulation become waste too.

## Polyester - Fast fashion's favorite material is on the rise



Increase in global fibre demand - million tonnes  
43.5% of the textiles fibres are for clothes - Graph adapted from Textile World (2015)

A lot more can be done to keep our old clothes separate from household waste - this would keep the material clean and allow more of it to be re-used and recycled, but ultimately, we need to both close the loop - by recycling the fibres into virgin material to make new clothes - and to slow down the rate that we consume by focussing on the clothes that are needed and re-thinking the systems used to supply them, taking in all stages from their design to their re-use or recycling.

At the moment closing the loop through the recycling of textile fibres is nowhere near possible; while the mechanical recycling of cotton (and wool) is an established process, this results in a loss of quality. The recycling of synthetic fabrics is much more limited with only a few companies offering chemical recycling of synthetic fabrics at the moment. Chemical recycling of natural fibres is also possible, with some start-ups processing used cotton to manufacture Lyocell-like fibres, which is a chemically modified cellulose.<sup>30</sup>

**Although there is currently much interest in chemical recycling and a lot of research is going on, none of these technologies are commercially viable at this point.** The main reason is probably the relatively high price of the chemically recycled fibre product compared to virgin material.<sup>31</sup>

The recycling of mixed textile waste poses a serious challenge. Technical problems that impede textile recycling include:

- The complexity of clothes, which are often composed of different fabrics, with the stitching and trims made of different materials. Buttons, zips and other non-textile parts need to be removed before processing, while colour pigments, coatings and prints cause additional problems.
- The increasing use of fibre mixes in fabrics, such as cotton/polyester. What looks and feels like a wool pullover, can easily contain 50 % synthetic fibres such as nylon and viscose.

These mixed fabrics cannot be recycled chemically without prior separation of the fibre fractions. This separation is technically possible for poly/cotton fabrics, as polyester but not cotton dissolves under alkaline conditions, but the process is still at a trial stage. Other fibre mixes, especially if they contain elastane, pose even more challenges.<sup>32</sup>

Even once these technical challenges are overcome, the current system of design for disposal is working against closing the loop.<sup>33</sup> The myth that clothes are recycled or re-used could even be increasing our consumption. Instead of throwaway materialism we need “true materialism”: **“a switch from an idea of a consumer society where materials matter little, to a truly material society, where materials – and the world they rely on – are cherished.”**<sup>34</sup>

## **Conclusion: Have we reached peak fashion?**

We need to kick the fast fashion habit. Not only will this help the environment, we will be helping ourselves. According to Maxine Bédard, co-founder of Zady; **“consumers are reaching their limit. While the pleasure of cheap fashion is neurologically very real, consumers are equally experiencing the mental exhaustion from the accumulation of all of this cheap clothing. ....We have a broken system and a consumer that is hungry for change”.**<sup>35</sup>

The simplest step we can take is to wear our clothes for longer. Look after them, repair them, restyle and re-invent them, swap them with friends and pass them on. Just increasing the lifespan of our clothes reduces all of their environmental impacts; for greenhouse gases **“doubling the useful life of clothing from one year to two years reduces emissions over the year by 24%”**,<sup>36</sup> as does buying second hand clothes; every kilogram of virgin cotton displaced by second hand clothing saves approximately 65 kWh, or 90 kWh for polyester.<sup>37</sup>

We can directly contribute to reducing these impacts by “shopping” our own wardrobes to use what we already have, or buying second hand clothes - and when we need to buy new, look for eco and fair trade labels. Standards on durability would help us choose clothes that last.

But fashion brands and manufacturers must take the greater share of responsibility for transforming the fast fashion system into one that respects the boundaries of the earth and the needs and concerns of their customers.

Some observers have warned about the future economic viability of the fast fashion model; **“overall, continuing business as usual would result in severe resource scarcity, high volatility in resource prices ..... and hence threaten the profits and success of fashion industry’s business models.”**<sup>38</sup>


Better quality clothes need to be designed, which are durable, fit the customer’s needs, are repairable, re-usable and at the end of their lives, completely recyclable - and which customers will cherish for many years. New business models are needed to deliver these changes, including systems for manufacturing, retailing, servicing and re-use/recycling, that will also encourage new attitudes among customers.

A sustainable fashion system would both close the loop and slow it down. New business models that will create multiple transformations, from the supply chain through to the customer and back again, are the only way to make fashion fit for the future.



# Endnotes

1. Muthu (2014), Roadmap to Sustainable Textiles and Clothing: Environmental and Social Aspects of Textiles and Clothing Supply Chain, Springer Science and Business Media, Singapore 2014 Editor Subramanian Senthilkannan Muthu, SGS Hong Kong Limited.
2. Martinez de Albeniz, Felipe Caro Victor (2014), **Fast Fashion: Business Model Overview and Research Opportunities**, April 25, 2014.
3. Martinez de Albeniz, Felipe Caro Victor (2014), op.cit.
4. Source for 2002 - 2015 data, Mc Kinsey & Company, Succeeding in tomorrow's global fashion market, 2016. Consumer and Shopper Insights, September 2014, Euromonitor data. Source for 2025 data, **Statistica**
5. McKinsey & Company (2016), **Style that's sustainable: A new fast-fashion formula**. By Nathalie Remy, Eveline Speelman, and Steven Swartz, October 2016.
6. Muthu (2014), op.cit.
7. Textile World (2015), **Man-Made Fibers Continue To Grow**, February 3, 2015. Calculation based on figure 2 - % age of fibres for apparel is 43.5%, interior and home textiles 33%, industrial and technical textiles 23.5%. Teonline, **Industry overview**, figure 4.
8. Textile World (2015), op.cit. Calculation based on figure 2 and slide 27, 43.5% is apparel.
9. **Fashion Metric blog (2016), The Current State of Apparel eCommerce in 2016**.
10. Kingdom of the Netherlands (2014), **CHINA'S FASHION INDUSTRY, An overview of trends, opportunities, and challenges, 2014**
11. The Atlantic (2015), **The Neurological Pleasures of Fast Fashion**.
12. McKinsey & Company (2016), op.cit.
13. Environment Agency, UK (2013), **Nonylphenol ethoxylates (NPE) in imported textiles**.
14. Muthu (2014), op.cit.
15. Carbon Trust (2011), **Clothing - International Carbon Flows (CTC793)**
16. Textile World (2015), op.cit., Calculation based on figure 1, 43.5% is apparel
17. Kirchain R, Olivetti E, Miller T R, and Greene S (2015), **Sustainable Apparel Materials, An overview of what we know and what could be done about the impact of four major apparel materials: Cotton, Polyester, Leather, & Rubber**, October 7, 2015. Materials Systems Laboratory | Massachusetts Institute of Technology | Cambridge, MA  
  
Figures are based on the following: "Over 706 billion kilograms of greenhouse gas can be attributed to polyester production for use in textiles in 2015 (based on the current marketplace, estimating that 80% of polyester production goes into textile and including both textile yarn and staple fibers, which are the primary types of polyester produced)." Using the same %age of use in apparel as the authors use for cotton (below) of 40%, 282 b kg CO2 is a conservative estimate for polyester. Total GHG emissions for cotton are calculated as follows: "In 2013, 25 billion kilograms of cotton was produced worldwide. Approximately 40% of that, or about 10 billion kilograms, was used in making apparel. At that scale, the estimated cradle-to-gate impact of cotton used within the global apparel industry is 107.5 million tons of CO2-eq" (equivalent to 97522 million kg/ or 98 billion kg.)
18. Watts, A., Urbina, M., Corr, S., Lewis, C. & Galloway, T. 'Ingestion of plastic microfibers by the crab *Carcinus maenas* and its effect on food consumption and energy balance.' *Env. Sci. Technol.* 49, 14597-14604 (2015)
19. McCormick, A., T.J. Hoellein, S.A. Mason, J. Schlupe, and J.J. Kelly. "Microplastic Is an Abundant and Distinct Microbial Habitat in an Urban River." *Environmental Science & Technology* (2014): 11863-1871.
20. Lu JJ & Hamouda H (2014), **Current Status of Fiber Waste Recycling and its Future**. *Advanced Materials Research* (Volume 878), pp. 122-131, 2014
21. WRAP (2016), **Textiles Market Situation Report 2016**  
Note: trade from the Netherlands and Belgium may include used clothes from other European countries in transit
22. FASH455 Global Apparel & Textile Trade and Sourcing (2015), **Global Trade of Used Clothing (Updated: October 2015)**, Dr. Sheng Lu, Department of Fashion & Apparel Studies, University of Delaware; (2015).
23. Newsweek (2016), **Fast Fashion is Creating an Environmental Crisis**, 1st September 2016.
24. Wall Street Journal (2016), **Fast-Fashion Castoffs Fuel Global Recycling Network - Deluge of secondhand clothes from rich countries is processed, resold in the developing world**, June 26, 2016
25. International Trade Association, Office of Textiles and Apparel (OTEXA), **U.S. Trade Data on Worn Clothing and Textile Products**.
26. Guardian (2016), **East Africa's ban on second-hand clothes won't save its own industry**, Andrew Brooks, 4th May 2016.
27. WRAP (2016), op.cit.
28. Newsweek (2016), op.cit.
29. Waste Management World (2016), **WRAP Report: Falling Overseas Reuse & Recycling Demand for UK Textile Exports**, 08.03.2016 16:24.
30. The Guardian (2015), **Waste is so last season: recycling clothes in the fashion industry**, Hannah Gould, Thursday 26 February 2015.
31. Peterson, Ann (2015), **Towards Recycling of Textile Fibers**. Chalmers University, Gothenburg 2015.
32. ECO TLC (2014), **Étude des perturbateurs et facilitateurs au recyclage des textiles et linges de maison**.
33. Fastcoexist (2016), **The fascinating psychology of why and what we choose to recycle**. August 2016.
34. Fletcher, Kate (2016), **Craft of Use - Post-Growth Fashion**, Routledge, April 2016, page 141.
35. Maxine Bédard (2016), **Our love of cheap clothing has a hidden cost – it's time for a fashion revolution**, 22nd April 2016, World Economic Forum.
36. Carbon Trust (2011), op.cit.
37. Lu JJ & Hamouda H (2014), op. cit.
38. Muthu (2014), op.cit.



Authors: Madeleine Cobbing, Yannick Vicaire

Photographer : Steffen Hofeman

**GREENPEACE**

Published by  
Greenpeace e.v., Hongkongstraße 10,  
20457 Hamburg, Germany

Greenpeace is an independent global campaigning organisation  
that acts to change attitudes and behaviour, to protect and  
conserve the environment and to promote peace.

[greenpeace.org/international/en/campaigns/detox/fashion](https://greenpeace.org/international/en/campaigns/detox/fashion)