



The Untapped Inter-Regional Link of Sustainable Garment Production and Consumption – What Bridges Asia and Europe?

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1. A general overview of Sustainable Garments

The global clothing industry employs millions of people and represents a substantial share of total employment in some low-income countries in Asia. Along its value chain, the industry is responsible for high environmental impacts, including water use, microplastic pollution, and CO₂ emissions. Both in Asia and Europe, garments consumption is increasing while garments lifetimes, as well as prices, are decreasing.

Garments represent more than 60% of the total textiles used, and clothing is expected to remain the largest application of textiles in the future¹. Garments are a fundamental part of everyday life and an important sector in the global economy. The global clothing industry is valued over USD 1.7 trillion and employs more than **300 million people** along its value chains². The production of cotton alone accounts for almost 7% of all employment in some low-income countries.

Alongside its positive impacts (mostly economic), negative environmental and social impacts characterise the garments life-cycle, such as land and water use, poor employment conditions, and waste production. Recent studies found that the fashion industry is the **second largest consumer of water in the world** (1.5 trillion litres per year³), responsible for ~20% of industrial water pollution from textile treatment and dyeing², and contributing to ~35% (190,000 tonnes per year) of oceanic primary microplastic pollution⁴. Furthermore, although there is a range of estimates, the industry produces up to **10% of global CO₂ emissions** (>1.7 billion tonnes annually) as well as vast quantities of textile waste (>92 million tonnes per year), much of which is

landfilled or incinerated⁵. Overall, these impacts are largely driven by the high competitiveness of the garments market, as well as the shortening lifetime of garments.

The number of garments produced annually in the world has doubled since 2000 with, in 2016, over 150 billion items produced, corresponding to nearly **20 new items of clothing per person** on Earth⁶. In the same period, clothing utilisation sharply declined.

Worldwide, the average **number of times a garment is worn** before it ceases to be used has decreased by 36% between 2000 and 2015. While clothing utilisation varies across countries and it also reflects cultural and behavioural aspects, a trend seems to be emerging, with high-income and fast-growing countries experiencing faster decreases. In China, for example, **clothing utilisation has decreased by 70%** from 2000 to 2015⁷. There is increasing evidence for this trend to be driven by a growing middle-class population and increased per capita sales, mainly due to the **'fast fashion'** phenomenon, with a quicker turnaround of new styles, increased number of collections offered

1 Ellen MacArthur Foundation, 2017, Circular Fashion - A New Textiles Economy: Redesigning fashion's future.

2 Lehmann, M. et al., 2018, Pulse of the Fashion Industry, Global Fashion Agenda.

3 Niinimäki, K. et al., 2020, The environmental price of fast fashion. *Nat. Rev.* 1, 189-200.

4 United Nations Climate Change, 2018, UN helps fashion industry shift to low carbon. unfccc.int

5 Quantis, 2018, Measuring fashion: insights from the environmental impact of the global apparel and footwear industries. quantis-intl.com

6 Remy, N., et al., 2016, Style that's sustainable: A new fast-fashion formula. McKinsey.com

7 Ellen MacArthur Foundation, 2017, Circular Fashion - A New Textiles Economy: Redesigning fashion's future.

per year, and – often – lower prices. All of this is fostering overproduction, with around **30% of garments produced annually never sold**.

While fast-fashion and overproduction characterise garments production and consumption globally, garment value-chains are, to a large extent, defined by **much of production occurring in Asian developing countries, and much of consumption taking place in the European Union (EU) and the US**⁸. This geographic distribution implies that environmental impacts typical of the initial stages of fibre productions and garments manufacturing, such as water and energy use, amongst others, are largely generated in Asia. On the other hand, chemical release during garments

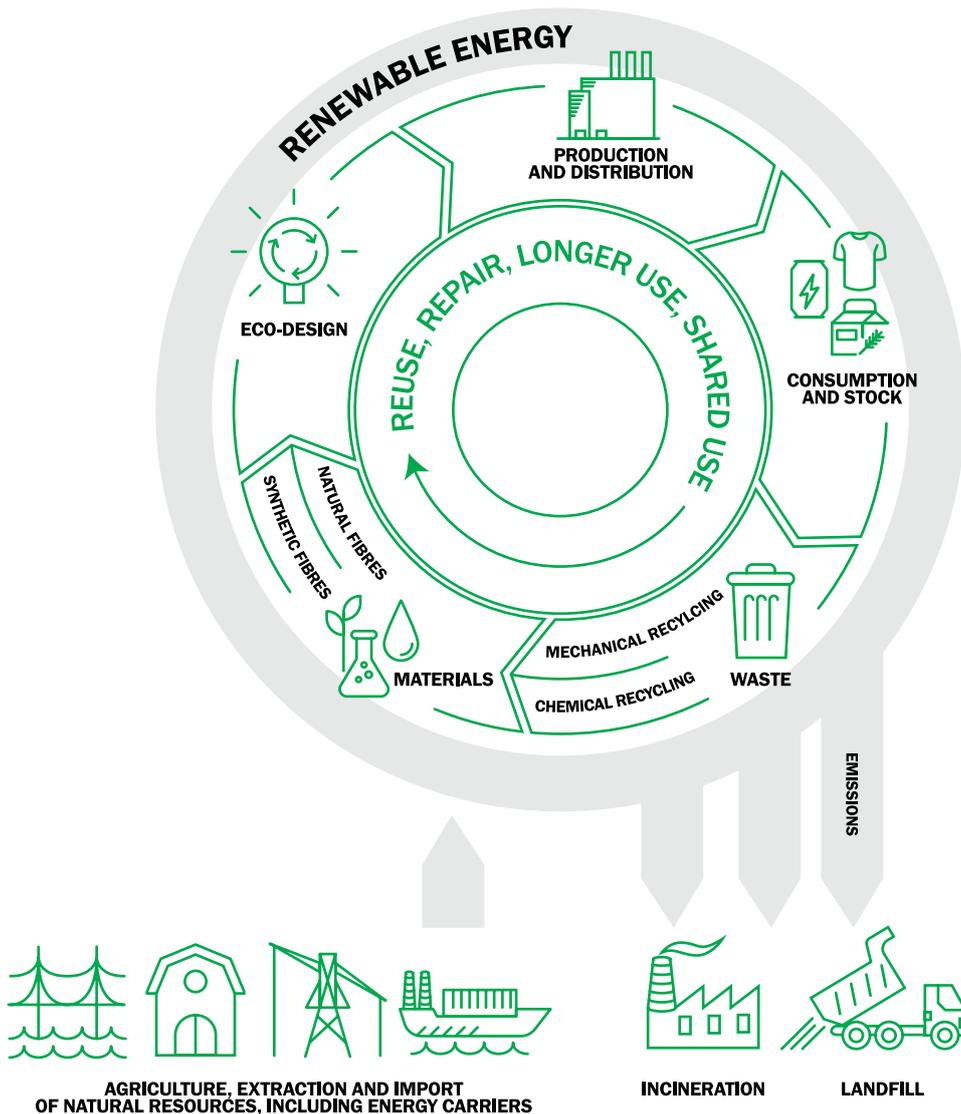
washing, and disposal of waste (where not exported to other countries), are impacts mostly generated in European and further consumer countries⁸.

New business models in more **circular textile systems** have potential to reduce unsustainable manufacturing, distribution and use of garments while preserving economic benefits and employment opportunities⁹. These models are based on design for longevity, resource efficient production, digitalisation, more durable products, maintenance and repairing services, recycling and upcycling. Their implementation requires consumers education and behavioural change, as well as tailored policy options to be put in place.

8 Niinimäki, K. et al., 2020, The environmental price of fast fashion. *Nat. Rev.* 1, 189-200.

9 EEA, European Environment Agency, 2019, Textiles and the environment in a circular economy.

Figure 1. Vision of a circular economy for garments.



Source: EEA and ETC/WMGE

1.1 Statistics from Asia and Europe

Globally, Asia is the largest producer of garments, while Europe and the US are the largest consumers. Environmental and other impacts in the production phase are mostly localised in Asian countries and embodied in imported garments. Impacts related to garments use, such as water and energy use in washing, ironing, etc., mostly take place in Europe.

More than **50% of the world's supply of fibres and fabrics** comes from Asia, with **China** producing more than a quarter. In 2019, China's textile exports were valued at approximately USD 120 billion dollars, corresponding to 39.2 percent of the global market share. In recent years, China's share in clothing exports has decreased, with the shares of exports growing exponentially in countries such as **Cambodia, Pakistan, Bangladesh, Vietnam and India.**

Trends in garment production are largely driven by competitive advantages for the clothing manufacturing industry, such as **production and labour cost, material supply availability, and reduced commercial barriers.** For example, between 2010 and 2016, the average growth of garment industry in Bangladesh and Vietnam was of 11% and 15%, respectively, while the growth for China was of 5%. At the same time, Bangladesh and Vietnam maintained lower monthly minimum wages (USD 65 to 166) as compared to China (USD 150 to 338). In the same period, India also maintained monthly minimum wages lower than China (USD 116 to 209) and saw its garment industry grow by 8%, further fuelled by its role as the world's largest producer of cotton¹⁰.

Besides net costs and material availability, other factors, such as the **quality of infrastructures**, play a central role in the supply chain of garments and could contribute to social and environmental impacts alongside production and manufacturing. In this vein, the collapse of the **Rana Plaza** textiles factory in Bangladesh in 2013 is exemplary. The collapse, which resulted in the death of 1,134 employees, uncovered the unsafe physical and infrastructural working

conditions to which workers in the garment industry are exposed. The event shocked the global community, turning widespread attention to the operation of the textile industry in Asia and worldwide, as well as on issues linked to the responsibilities of Western global fashion brands, governments' and international organisations' policies, and even the individual choices of consumers.

According to a Briefing by the European Parliament in the aftermath of the Rana Plaza tragedy¹¹, the 2005 World Trade Organization (WTO) Agreement on Textiles and Clothing, which brought to an end the previous quota system, is what provoked the rapid offshoring of garments production to Asia. Consequently, the textiles and clothing sector now represents one of the top sectors in many Asian countries, both in terms of number of people employed, and economic output. The sector is however characterised by a **large share of informal workers**, up to at least 35% of formal workers, according to a conservative estimation by the Common Objective business network for the fashion industry¹². According to the same source, around **75% of factory-based garment workers are women**, which underlines the sector's role for promoting female economic empowerment and, at the same time, the possibility for the sector to be exploiting, and contributing to worsen, structural payment gaps and existing inequalities between male and female workers.

The concentration of a large share of garments production in Asian countries is unevenly shaping the geographic distribution of key environmental impacts from the fashion supply chains. As most environmental impacts alongside

10 Techpacker App, 2018, Top four Asian countries for garment manufacturing. medium.com

11 D'Ambrogio, E., 2014, Workers' conditions in the textile and clothing sector. EPRS | European Parliamentary Research Service.

12 Common Objective, 2018, Faces and Figures: Who Makes Our Clothes? commonobjective.co

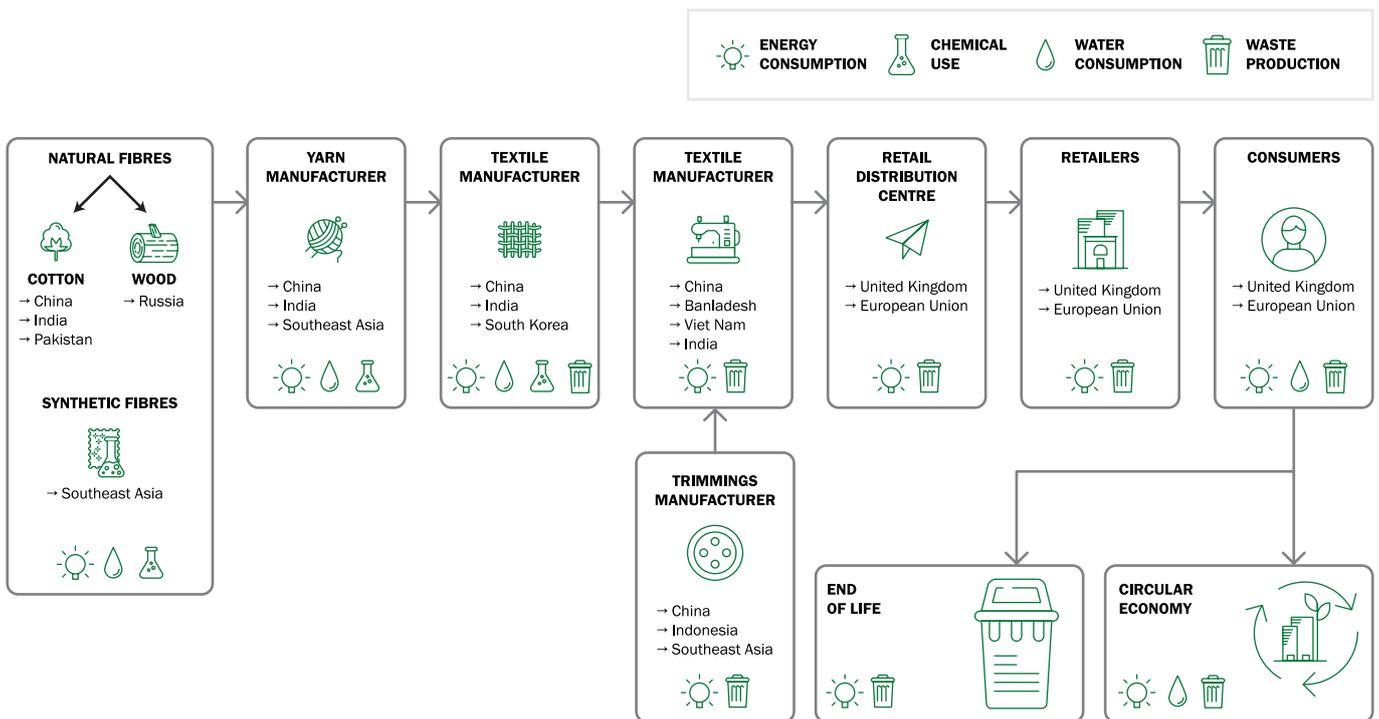
the garments life-cycle occur in the production phase, we could state that garment-manufacturing countries (mostly Asian countries) are paying the higher environmental price when it comes to the global garment and fashion industry. Each step of garments production has an **environmental impact due to water, material, chemical and energy use**. Many chemicals used in manufacturing are harmful for the environment, workers, and consumers.

With regard to water use, a large share of global impact occurs in the cultivation of one single crop: **cotton**, which is responsible for **95% of the total water use for textiles production in the world**¹³. Water use, together with the use of arable land, is potentially generating conflicts between fibre cultivation and food production, leading to increased deforestation, food scarcity and malnutrition. For example, a recent study calculated that 9% of national malnutrition in India is attributable to cotton cultivation, which occupies 8% of the country's arable land¹⁴.

See Figure 2.

- 13 Pfister, S., et al., 2011, Projected water consumption in future global agriculture: Scenarios and related impacts. *Sci. Total Environ.* 409, 4206–4216.
- 14 Ridoutt, B., et al., 2019, An LCA impact assessment model linking land occupation and malnutrition-related DALYs. *Int. J. Life Cycle Assess.* 24, 1620–1630.

Figure 2. Garment-manufacturing supply chain.



Garment-manufacturing supply chain. The key stages of the fashion supply chain with the geographic location (in Asia & Europe) and broad-scale environmental impacts (energy, water and chemical use, and waste production) for each stage of the process. The garment supply chain is globally distributed, with much of the initial fibre production and garment manufacturing occurring in developing countries, while consumption typically occurs in developed countries.

[This chart was adapted and modified for this conference from Niimäki, K., Peters, G., Dahlbo, H. et al. The environmental price of fast fashion. *Nat Rev Earth Environ* 1, 189–200 (2020). <https://doi.org/10.1038/s43017-020-0039-9>]

With regard to the use of chemicals, there is often lack of information and transparency, complicated by the very complex value-chains of garments. However, major uses of chemicals harmful for the environment and human health occur during crop cultivation (use of **agrochemicals** including pesticides, insecticides, herbicides and fungicides), and textiles manufacturing (use of lubricants, solvents, bleaches, surfactants, softeners, antifoaming agents and durable water repellents, amongst others). In terms of financial value, 6% of global pesticides production is applied to cotton crops. Heavy use of agrochemicals causes diarrhoea, cancers and respiratory diseases¹⁵, while pesticide poisoning is responsible for nearly 1,000 deaths a day and might cause infertility, miscarriage and birth defects. In the environment, agrochemicals cause a decrease in biodiversity and fertility¹⁶.

With regard to energy use, the geographical location of the major producer and consumer countries implies extended distribution chains with consequent CO₂ emissions. However, emissions from transport represent only 5% of total impact of textiles on climate change, while 51% occurs in the production phase, and 44% in the use phase¹⁷. In 2015, greenhouse gas emissions from textiles production amounted to **1.2 billion tonnes CO₂-eq**, more than international flights and shipping combined¹⁸. Depending on the fibre, textiles production is characterised by **high greenhouse gas intensity**, between 15–35 tonnes CO₂-eq per tonne of textile produced, which is higher than greenhouse intensity for plastic (i.e. 3.5 tonnes of CO₂-eq per tonne of plastic) or for paper (i.e. 1 tonne of CO₂-eq. for 1 tonne of paper)¹⁹. The fibre with highest greenhouse gas intensity in the production phase is wool (17 kg of CO₂

per kg fibre), followed by polyamide (8.3 kg of CO₂ per kg of fibre). However, when considering global fibre production, the highest impact in terms of climate change is associated with polyester (178.2 million tonnes of CO₂), followed by cotton (59.4 million tonnes of CO₂) and polyamide (50.63 million tonnes of CO₂).

In the European context, the 2019 European Environment Agency's briefing and report on textiles in the EU represents the most up-to-date information on EU textiles consumption and its associated economic, social and environmental impacts²⁰. Although the EU is a net importer of textiles, mostly from Asia, it also exports huge amounts to other regions, representing more than 30 per cent of the world textile market²¹. Furthermore, the EU is the second largest exporter of clothing and garments after China. In 2018, the textiles sector in the EU were employing 1.7 million people, with a turnover of EUR 178 billion²². More than 37% of textile quantity imports in the EU comes from China, followed by Turkey (11%), Bangladesh (10%) and India (9%).

Across different European countries, and considering different estimates, European households consume on average from **9 to 27 kg of textiles per person**²³, spending an average EUR 871 per person, in 2017 (Exiobase 3.4). The share attributed to clothing, footwear and household textiles across total expenditure of EU households have been declining from 6.3% in 2000 to 5.3% in 2017²⁴. Despite this decline, there has been a 40% growth in the amount of purchased clothes per person in the EU between 1996 and 2012²⁵. This reflects a decrease in clothing prices, which dropped by more than 30% between 1996 and

15 Reeves, M., 2002, Fields of poison 2002: California farmworkers and pesticides. Pesticide Action Network (PAN).

16 Pesticide Action Network UK, 2018, Is cotton conquering its chemical addiction? A review of pesticide use in global cotton production. issuu.com

17 JRC, 2014, Environmental improvement potential of textiles (IMPRO Textiles), JRC Scientific and Technical Reports.

18 Ellen MacArthur Foundation, 2017, Circular Fashion - A New Textiles Economy: Redesigning fashion's future.

19 Eunomia, 2015, The Potential contribution of waste management to a low carbon economy.

20 EEA, European Environment Agency, 2019, Textiles and the environment in a circular economy.

21 EC, 2019, Sustainable products in a circular economy – towards an EU product policy framework contributing to the circular economy, European Commission Staff Working Document 92.

22 Euratex, 2019b, Key Figures 2018 - The EU-28 Textile and Clothing Industry in the year 2018.

23 EEA, European Environment Agency, 2019, Textiles and the environment in a circular economy.

24 Eurostat, 2019, EU trade since 1988 by HS2-HS4.

25 Šajn, N., 2019, Environmental impact of the textile and clothing industry. What consumers need to know, European Parliamentary Research Service.

2018. While several interlinked factors could explain these trends, one overarching driver of decreasing expenditures and increasing consumption is the emerging of **fast-fashion trends**, made possible by more economically efficient production processes which allow for a more frequent introduction of new fashion lines and shorter market seasons. For example, European apparel companies in the year 2000 used to release an average of 2 collections, while in 2011 they released on average of 5²⁶. According to more recent estimates²⁷, some of the biggest brands targeting young people are now releasing **up to 12, 16 and 24 new clothing collections every year**. The average lifespan of clothes in Europe varies between 2.2 and 5 years²⁸, which is half as long as it used to be 15 years ago.

See Figure 3.

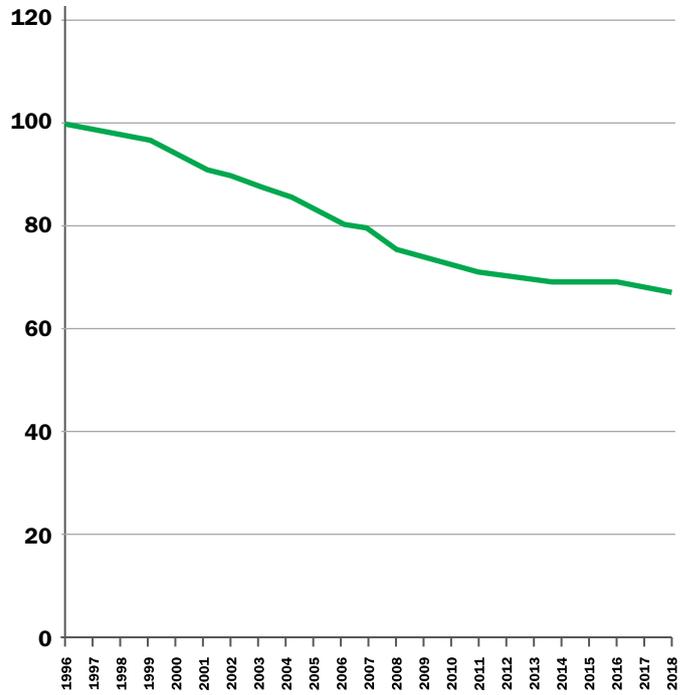
As the **EU is a net importer and a major consumer of garments**, most environmental impacts taking place in European countries are related to use, maintenance (e.g. washing, drying and ironing), and disposal of clothing items. However, water and energy are exported as garments from producing countries in Asia, to consuming countries in Europe. Agrochemicals used for fibre crop cultivation spread around the globe and bioaccumulate into food chains, damaging global ecosystems and biodiversity. The logistics of garments production and consumption contribute to climate change through transport. Textile waste generated in the EU is then disposed either locally or exported to third countries.

In 2017, around 675 million tonnes, 1,321 kg per person, of **primary raw materials** – including fossil fuels and fertilisers but excluding water - were used to produce all clothing, footwear and household textiles purchased by EU households²⁹. The vast majority - 85% - of this primary material consumption took place outside Europe, and mostly in Asia. In the same year, **53,000 million cubic metres of water** were needed for producing these textiles.

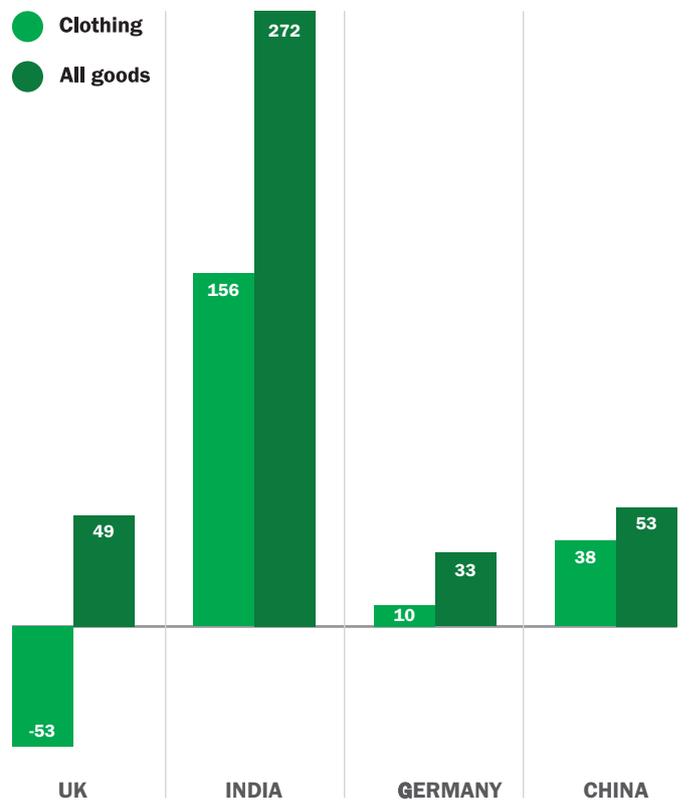
26 Koszewska, M., 2018, Circular economy - challenges for the textile and clothing industry, Autex Research Journal 18, 337-347.
 27 Remy, N., et al., 2016, Style that's sustainable: A new fast-fashion formula. McKinsey.com
 28 Gray, S., 2017, Mapping clothing impacts in Europe: the environmental cost, ECAP/WRAP.
 29 EEA, European Environment Agency, 2019, Textiles and the environment in a circular economy.

Figure 3. Changes in consumer prices for clothing.

EU consumer price indices for clothing relative to total HICP inflation, 1996-2018, index = 1996 = 100



Changes in consumer prices, 1995-2014, %



Source: Eurostat (2019); Euromonitor, McKinsey

Again, the major part of this water - 90% - was used outside Europe²⁹. Similarly, the **land used for fibre crop cultivation** for producing textiles purchased in Europe, which totals 703 square meters per person for EU households, was located by a large extent - 93% - outside Europe. Finally, the total **greenhouse gas emissions** embodied in the production of textiles purchased by EU households in 2017 totalled 334 million tonnes CO₂-eq, or 654 kg CO₂-eq per European citizen, making textiles the fifth-largest product category in terms of climate change impact in the EU. Most of these emissions - 75% - were released outside Europe.

In the use-phase of garments, around **half a million tonnes of plastic microfibres** are released from washing plastic-based textiles, such as polyester, which indicates that washing of garments is one of the major sources of microplastics to the environment. At this rate, it is estimated that the volume of plastic microfibers in the ocean could exceed 22 million tonnes by 2050. Beside plastics, **the washing of garments releases chemicals** not tightly bound to the fibres into wastewaters and then rivers and water bodies with hazardous effects to human health and the environment. The use of detergents is a further source of chemicals to water bodies with adverse effects in terms of, for example, water eutrophication, and there is evidence for consumers to **overuse detergents** due to the lack of clear instructions from producers or other sources³⁰. In general, insufficient transparency and the complexity of garments value-chains cause high uncertainty with regard to the global and local impacts of plastics and chemicals when it comes to the use-phase of textiles, calling for further research efforts as well as more strict regulation and consumers education.

At the **end-of-life**, EU consumers discard around 5.8 million tonnes of textiles every year, or 11.3 kg per person³¹. However, the volume of textile waste varies broadly across EU member states, from less than 10 kg per person discarded per year in France, to over 25 kg per person discarded in the UK³². Similarly, separate collection of textile waste goes from less than 5 kg per person in Italy, to over 10 kg per person in Germany³². Research shows that several factors contribute to this variability, including differences in infrastructure, density of collection points, collection activity by charity organisations, availability of support for sorting and recycling, as well as public awareness and cultural/behavioural aspects³². Some of these elements also explain the broad variability in re-using garments. While buying second-hand clothing is increasingly popular, it does not exceed 9% of total purchasing in leading countries such as Denmark, and in most EU countries remains below 5%, e.g. in Germany, Italy, Netherlands and the UK³³.

Unsorted textile waste in the EU is then exported to a large extent, in particular to Eastern European countries from which is **exported again to Africa and Asia for reuse or recycling**. Export of used clothes has been increasing very fast in the EU, from less than 0.5 million tonnes in the year 2000, to over 1.4 million tonnes in 2018. While this flow of export might contribute to employment opportunities in the recycling industry of receiving countries, evidence shows that is having a more prominent negative impact in terms of the decline of domestic textile industries, in particular in sub-Saharan countries³⁴.

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- 30 Gwozdz, W., et al., 2017, An Environmental Perspective on Clothing Consumption: Consumer Segments and Their Behavioral Patterns, *Sustainability* 9, 762.
- 31 Beasley, J. and Georgeson, R., 2014, Advancing resource efficiency in Europe. Indicators and waste policy scenarios to deliver a resource efficient and sustainable Europe, European Environmental Bureau.
- 32 EEA, European Environment Agency, 2019, Textiles and the environment in a circular economy.
- 33 Gray, S., 2017, Mapping clothing impacts in Europe: the environmental cost, ECAP/WRAP.
- 34 Watson, D., et al., 2016, Exports of Nordic Used Textiles. Fate, benefits and impacts, Tema Nord 558, Nordic Council of Ministers.

1.2 Overview of policies and regulations in Asia and Europe

Textiles, including garments, are a priority product category in the new EU Circular Economy Action Plan. Separate collection of textiles will have to be implemented by EU countries by 2025. More effective legislation for improved working conditions, as well as ensuring transparency throughout garment value chains is needed both in Asia and in Europe.

In 2019, the European Commission has identified textiles, clothes and fabrics, as a priority product category within the EU Circular Economy Action Plan³⁵. Furthermore, the 2018 Circular Economy Package and WFD requires all EU member states to implement separate collection of textiles by 2025. Additional regulations/guidelines on improving the environmental and social impact of textiles production and consumption are focused on increasing transparency and reducing the use of specific chemicals in the production process. These initiatives include the EU Regulation No 1007/2011 on fibre names, related labelling and marking of the fibre consumption of textile products; the EU Ecolabel criteria for textile products; and the EU Regulation No 259/2012, that restricted the use of phosphates in laundry detergents, amongst others.

In the context of Asia, the sector is regulated by national legislations and regulations from national environmental protection agencies. With regard to non-governmental initiatives for sustainable garments, it is worth mentioning the Platform on Sustainable Textile of the Asian Region (STEM), which aims to increase transparency within the industry and to learn from innovative initiatives tackling sustainability issues, as well as the activities of the Global Fashion Agenda and the Ellen MacArthur Foundation, which are pushing the industry and informing regulation towards more circular and sustainable models.

The Global Fashion Agenda, in particular, developed the Pulse Score to detect patterns of key environmental and social impacts of the fashion industry. Since 2017, the score

has been showing an increasing trend towards sustainability, although this trend has been recently slowing. The Ellen MacArthur Foundation developed in 2019 its Jeans Redesign Guidelines³⁶, which set out minimum requirements to ensure durability, recyclability and better environmental and social performances when it comes to the production process and the health and conditions of garment workers.

By focusing on social impacts, it is essential for further Asian countries to ratify fundamental ILO conventions on the abolition of forced labour, freedom of association and protection of the right to organise, equal remuneration, and child labour, amongst others³⁷. However, some good examples have been set by forerunning Asian countries, such as Cambodia, who was the first country in the world that, through the Better Factories Cambodia (BFC) programme, independently monitored and reported on working conditions in garment factories, vis-à-vis compliance with national and international standards. The UN Guiding Principles on Business and Human Rights, as well as the OECD Guidelines for Multinational Enterprises have defined standards of corporate social responsibility for Western brands operating in Asian countries, but their not binding nature have undermined their effectiveness.

Further international initiatives for improving environmental and social impacts through garments value-chains include the COP24 Fashion Industry Charter for Climate Action, and the OECD Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector.

35 EC, 2019, Sustainable products in a circular economy – towards an EU product policy framework contributing to the circular economy, European Commission Staff Working Document 92.

36 Ellen MacArthur Foundation, 2019, Make Fashion Circular launches the Jeans Redesign.

37 D'Ambrogio, E., 2014, Workers' conditions in the textile and clothing sector. EPRS | European Parliamentary Research Service.

2. Interlinkages on sustainable garments between Asia and Europe

Fast-fashion trends need to be reversed both in Asia and in Europe in order to achieve circularity. Environmental impacts can be reduced via subsidies for more sustainable production systems as well as implementing consumer-based accountings for allocating responsibilities. The interlinkages, and commonalities and differences, between Asia and Europe have to be considered for addressing negative – and maximising positive - impacts of the garments sector.

As discussed in the previous sections, several economic, environmental and social impacts characterise garments value-chains. The high complexity and the global scale of these value-chains require major integration between producing and consuming countries and other actors in terms of implementation of more sustainable business models. These models should be based on sustainable fibre productions, use of safe and clean materials, eco-design, resource-efficient production, shared and longer use and re-use of garments, waste prevention and separate collection of waste.

While production, mostly located in Asian countries, should be further regulated and made more transparent; consumption, occurring for the most part in the EU, should be reduced by providing economic subsidies to more sustainable consumption modes, and promoting behavioural change and consumers education.

The contrasting pulls for maintaining employment opportunities in producing countries (and countries that import textile waste) while implementing more sustainable and circular models for the fashion industry, require to be carefully balanced. The interlinkages between Asia and

Europe when it comes to clothing value-chains are inextricable. While more local production and consumption loops are definitely important for reducing negative environmental and social impacts of the garments sector, and overproduction and lack of recycling have to be urgently tackled, a reduction in the EU levels of consumption of garments might have consequences in Asian producing countries.

In order to resolve this contrast, initiatives for reducing overproduction and consumption might come together with initiatives for implementing circular solutions with a high potential for new businesses and employment. For example, fibre recycling of clothing textiles has been showed to reduce material and water use while creating economic opportunities³⁸. Streamlining industrial processes which uses less chemicals might save costs in manufacture, providing economic incentives to implement more sustainable practices³⁹.

“ In order to resolve this contrast, initiatives for reducing overproduction and consumption might come together with initiatives for implementing circular solutions with a high potential for new businesses and employment.

38 OVAM, 2019, Circulaire economie en de Vlaamse klimaatdoelstellingen. Voedings- en textielsysteem.

39 Niinimäki, K., et al., 2020, The environmental price of fast fashion. *Nat. Rev.* 1, 189-200.

Garments in Asia and Europe: what is common and what is different

WHAT IS COMMON?

- **Fast-fashion:** quicker turnaround of new styles, increased number of collections offered per year;
- **Increasing consumption** fostered by lower prices and shorter lifetimes;
- **High volumes of exports**
- **Positive economic impacts**
- **Work accidents and unsafe infrastructures**, while more common in Asia, are not uncommon in the garment industry in Europe.

WHAT IS DIFFERENT?

- **Environmental impacts** are local and mostly associated with production in Asia, and are imported in purchased items or mostly linked to garments maintenance (washing, ironing, etc.) in Europe;
 - **Land use trade-offs:** fibre cultivation in Asia competes with food cultivation and other land uses; only 7% of land-use for fibre cultivation for textiles consumed by European households takes places in Europe;
 - **Common legislation across countries** characterises the EU context, while policies are more heterogeneous and at the national or more local scale in Asia.
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The use of consumption-based accounting for allocating greenhouse gas emission responsibility, as an alternative to traditional emission inventories based on the Intergovernmental Panel on Climate Change (IPCC) guidelines, has been often proposed as a policy tool with the potential to re-shape global trade towards more sustainable production and consumption⁴⁰. This alternative way of allocating impact responsibilities could be applied to further environmental (e.g. water use) and social impacts, with a strong relevance for the textiles sector in the Asia-Europe context, as most impacts of consumption in Europe occur in producing countries in Asia.

Continuous efforts for improving working conditions in the garments industry is also essential, and effective initiatives in Asia could be exported in European countries where, for example, work accidents and unsafe physical infrastructures are not uncommon in the garment industry⁴¹. Finally, the overarching issue of fast-fashion needs to be tackled by both changing production processes and educating consumers. Moving towards slower fashion trends would generate opportunities for skilled workers and more durable products and provide further business opportunities based on re-using and recycling models. Overall, a system-change for sustainable garments will improve quality of life, health and economic welfare both in Asia and in Europe.

40 Caro, D., et al., 2017, Mapping the international flows of GHG emissions within a more feasible consumption-based framework. *J. Clean. Prod.* 147, 142-151.

41 Luginbühl, C. and Musiolek, B., 2014, Stitched up: poverty wages for garment workers in Eastern Europe and Turkey, Clean Clothes Campaign.

ASIA-EUROPE ENVIRONMENT FORUM



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