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Fast Fashion:

How to deal with increasing clothing consumption

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Jan-Otmar Hesse and Simon Kahles

Fast Fashion: How to deal with increasing clothing consumption

On average, every citizen of the United States of America discarded 47 kg of textiles in 2018, European consumers only 11 kg. Altogether, the global society produces 92 million tons of textile waste every year, a figure that is anticipated to have grown to 148 million tons by 2030. While municipal solid waste has doubled in the US since 1960, textile waste has been growing almost by the factor of 9.¹ The reason for this growing mountain of unused cloths is our increased hunger for fashion: According to a Greenpeace-survey, an average German adult owned 95 items of clothing in 2018, and almost 40 percent of those are either infrequently, or barely, if ever, worn. More than half of tops, pants, and shoes were sorted out after three years of use, with many being thrown out after less than one year.² Together with a significant drop in prices, the fast-changing taste and consumer preferences are an important driving force of increasing textile consumption.

From the total of 111 million metric tons that the global textile industry produces every year the majority goes into the production of apparel. Though today, 60-70% of textiles is made of synthetic fibers and cotton textiles' share went down, the consumption of natural resources for textile production is huge: cotton plantation uses 30 million hectares of land, most of which to be find in the four biggest cotton producing economies, China, India, USA and Brazil. The production of a single cotton T-shirt uses 2,700 liters of fresh water, enough to meet the drinking need of a human for 2,5 years. Altogether, global textile production consumes 80 billion cubic meters of water every year. In addition, the trade of the gigantic amount of cloths accounts for 10 percent of CO₂-emissions of all global transportation.³

Though textile recycling was extended over the past decades, still only 15% of all textiles are currently collected and injected in different forms of a second use. The majority of global textile waste – 85% equaling 89 million metric tons – still ends up in landfills all over the world, with development countries serving as final destination for textile waste from the industrial countries.⁴ Activities to make use of the textile waste has been intensified over the last years. The EU Parliament approved a regulation in 2018, that member states should have introduced separate collection of textile waste by 2025. Textiles received priority in the transformation of the European economy to a circular flow economy, demanding for new business models in textile production and recycling.⁵ Several steps are announced and programs launched since them including research and management trainings.⁶

There is no doubt that new technologies and new business models are necessary to deal with fast increasing textile waste. But is such a strategy sufficient? Isn't it furthermore necessary to rethink modern society's appreciation of textiles in a more fundamental way and come to a more sustainable use and reuse of these resources? And if so: How can it be archived?

The value of cloths from pre-modern times until today

The philosophy of how we view and treat clothes has drastically changed over the past century. Garments in pre-industrial Europe were not available in the same abundance as they are today. Labor-class families typically possessed no more than a single dress, that they wore at any occasion, sometimes complemented by a Sunday church outfit. Poor families in Germany were dressing in rags, children were wearing no shoes still at the end of the 19th century.⁷ But even in the middle classes, clothes belonged to a household's wealth, rather than to a regular equipment. If family members needed an accurate suit on special occasions like marriages or holydays, even middle-class people would borrow them from a pawnbroker. If one happened to possess a nice suit or costume, which had been hand-made, they were traded in at the pawnbroker for cash in times of crises. Many stories about experiences with pawnbrokers have fabulously been told from pre-industrial France.⁸ Items of clothing were used and reused, repaired and altered, again and again, until they were utterly worn out. In heredity lists, we often find a careful description of clothes passed further from one generation to the other.

In the cities of the 18th century, secondhand markets for apparel and clothing had been very common. Clothes were traded on the street by different individuals, be it private persons, peddlers, or thieves. Only later, the place of exchange started to shift from the street to shops that specialized in secondhand business. It was also not uncommon to pay servants, wet nurses or caregivers in used goods, which could then in turn be impounded. Besides direct exchange, auctions were another vital way of making money with secondhand goods, not only in the city, but also in the country. Not only traders profited from used clothes, though. Skilled cobblers and tailors were needed to refit and repair items before or after they were sold again.⁹ Dressing up remained to large extend and for the vast majority of the population connected to used cloths. Only a small elite could afford to make use of the service of tailors, the only producer of new cloths.

The Industrial Revolution deeply changed the way the European population dressed up. The technological improvements of spinning and weaving, which triggered a long series of industrial transformations, reduced prices for textiles to a minimum. British textile mills flooded the world with cheap cotton fabrics that had been worn by British soldiers and migrants all over the world as well as in "old Europe".¹⁰ Together with the mass-production of cloths came the transformation of the infrastructure for the supply. Peddlers became rare, while permanent department stores became the most common place to buy cloths. In the 1920s we see the early chain stores covering continental Europe, that transferred the clothing business from offering individualized tailored cloths to ready-made clothing, presented in standardized sizes.¹¹

But still, clothing was expensive relative to other household expenses. Clothing and shoes accounted for 15% of an average net household expenditure in Germany until after World War II, when it started to continuously decline. Today, German households spend less than 4% of their monthly income on clothing and shoes, though they get an extremely larger amount of item for their expenditure.¹² Other

countries saw a similar development. In the European Union, households spend on average 5% of their monthly income on cloths, with interesting differences across the countries. While the average household spending significantly declined in modern societies, per capita consumption of pieces of cloths increased, because the production costs in the globalized textile industry shrank even more. Over the last decades, the deregulation of the global textile trade came on top so that a T-shirt today can be shopped for a few Euros.¹³ It was the long and significant decline of production costs that promoted excessive and sometimes wasteful consumption behavior and fast fashion in modern societies.

The challenge of Textile Recycling

Can the consumer taste and behavior be changed on a short notice? If not and if we assume that the volume of textile waste will continue to be rapidly increasing, recycling of textiles seems one of the most promising solutions to reduce the amount of textile waste, which currently is mainly ending in the various “landfills” around the globe. However, the organization of textile recycling is in itself difficult. It requires many pre-conditions and organizational preparation on the different levels of the public regulation and private initiative, as will be shown by the example of Germany in the following.

In Germany, textile recycling is partly in the hands of charity organizations and partly conducted by private business. Both actors have umbrella associations in Germany, *Fairwertung* for charitable organizations with around 130 members¹⁴ and the *Fachverband Textilrecycling* of the *Bundesverband Sekundärrohstoffe und Entsorgung (bvse)* for commercial businesses with around 100 members¹⁵. In addition to commercial and charitable organizations, public disposal providers are playing a larger role since a 2012 change in the recycling law. These three cover the different steps that are necessary in order to give new life to used clothing.

Only around 43 percent of commercial businesses cover the whole value chain of recycling: collection of clothing, sorting, utilization and selling. The rest of commercial recyclers specialize in parts of this value chain. Also, charitable organizations do not necessarily cover the complete value chain of recycling. Many of them focus on collecting used clothes, sometimes assisted by commercial partners. The selling of collected cloths provides the charity organizations with funds that they can use for their organization’s purpose. Commercial organizations will receive profits out of the part of the value chain that they organize most efficient. Often this relates to offshoring labor-intensive steps of the value chain. Municipals and counties joined the clothing collection over the last years as main organizers of garbage collection in Germany with the purpose of separation of textile waste from other household waste. They usually directly sell their collections to commercial recycling enterprises, as they do not have the capacity to sort and further process the items.¹⁶

There are different ways in which used clothes are collected. Whereas street collection was the mainstay of textile recyclers in Germany for a long time, it has since been mostly replaced by containers, with the share of street collecting dropping further and further. Containers provide a much more efficient way of gathering used items of clothing than the classic street collection and by 2013, 88 percent of used garments were collected via containers (up from 80 percent in 2007). Street collection dropped from 20 percent in 2007 to 9 percent in 2013. Besides those two methods, more have sprung up over the past years, accounting for the remaining 3 percent in 2013. It is now possible for example to hand in used clothes at fashion stores, often in exchange for store credit.¹⁷

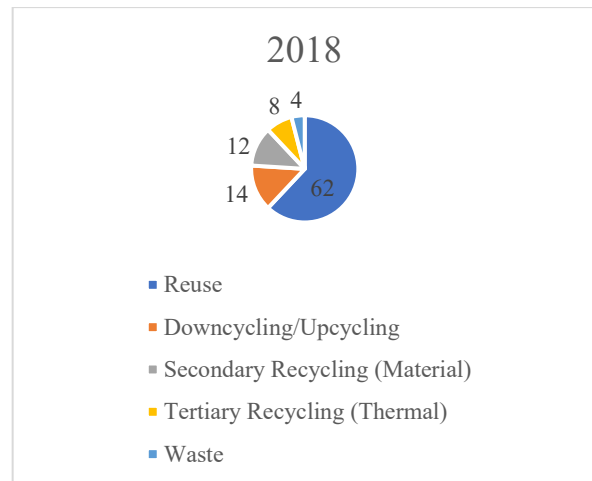
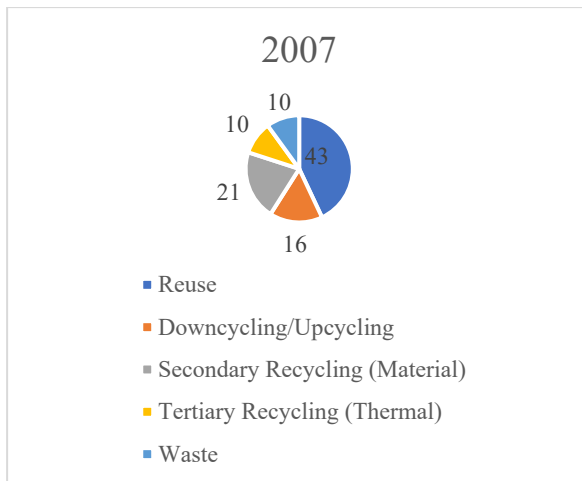
The problem of illegal clothing collections illustrates, how valuable used clothing is today. It is estimated, that one third of all collecting containers that can be found in the streets of German cities today, are deposited illegally, meaning that they are not properly registered. Sometimes it is not even clear, who actually deposited them and it cannot be guaranteed that the owner of these containers follow the correct recycling procedures. Clothing that is not desired is often just left behind without proper disposal.¹⁸

Illegal Clothing container in Gelsenkirchen, January 2023¹⁹



The sorting process that follows the collection of clothing is the most labor intensive. And until today it is difficult to automatize. The sorting separates the clothing on for potential further purposes: The most desirable outcome is reuse, where the item is once more worn as a garment. Next in the chain is the repurposing (downcycling/upcycling) of the item as for example cleaning rags, if the quality is too subpar to justify reuse. If the item is also not eligible for being turned into rags, the next step is secondary recycling of the material.²⁰ Unfortunately, true fiber recycling, where fibers are actually used to produce new garments, and not just as insulation material, is still rare.²¹

When secondary recycling is also impossible, the item is burned in power plants and transformed into energy, which is often referred to as thermal or tertiary recycling. If this is not possible either, because e.g. it implies the freeing of toxic gases from synthetic fibers, the item of clothing ends up as waste which means finally in “landfills”. In Germany, the shares of the different reuse/recycle categories have changed significantly over the last years. In 2007, only 43 percent of clothes were directly reused, whereas in 2018 it was 62 percent. Repurposing of clothing as rags stayed approximately the same, as the share only decreased by 2 percent between 2007 and 2018. Secondary recycling saw the second largest difference, dropping from 21 percent in 2007 to 12 percent in 2018. Thermal recycling dropped by 2 percent and the amount of clothes that had to be thrown out could also be reduced from 10 to 4 percent (see Annex).²²



Though the share of reuse could be dramatically extended in Germany over the last decade, this does not necessarily mean a decline of textile waste in general. On the one hand the amount of textile waste in total was fast increasing. On the other hand however, the “reuse”-category actually included a larger share of textiles that are exported. In 2013, only 4 percent of used clothes have finally been sold in secondhand stores in Germany. The rest was exported for its “reuse”. Most of the in theory reusable textiles (44 percent) was exported to European neighbors (including the Russia and European successor states of the USSR). However, the second largest importer of German used textiles is Africa (28 percent).²³

There has been a lot of controversy about whether western countries’ exports of secondhand clothing have helped or harmed African economies in the past.²⁴ It is a fact though that today many African countries are drowning in literal tons of secondhand garments that arrive for example in Accra, Ghana, every day.²⁵ While it is still considered cloths for reuse, it could be considered waste at the same time because the final destination of the cloths is not always clear. It became object and property of international textile corporations, that – often as a hybrid between private corporation and charity organization – are involved in the business of textile recycling. Often the exported textiles are not recycled but end up in landfills again.

TEXAID – an example for a commercial textile recycling company

In 1978, six charitable organizations, the Swiss Red Cross, *Winterhilfe Schweiz*, *Solidar Suisse*, *Caritas Schweiz*, *Kolping Schweiz*, and the relief agency of the Protestant Churches in Switzerland founded the *TEXAID Textilverwertungs-AG* as a charity private partnership together with an entrepreneur specialized in textile recycling. Their goal was to unite their used clothing collections as well as create a professional and sustainable value chain. Today TEXAID is one of the largest European textile recycling companies with locations in Germany, Austria, Bulgaria, Hungary, and Morocco. TEXAID is one of the companies that cover all parts of the recycling value chain, starting with the acquisition of used clothing itself. They use all the aforementioned collecting methods, with containers once more being the most important one. TEXAID operates more than 15,000 of those and besides the “classic” container, there are now modern underground containers, where only the slot column is visible. These save space and offer more storage at the same time. Since street collections have become less viable, both in economic as well as in environmental terms, TEXAID has fully suspended doing those themselves. Instead, they work together with the Swiss postal service since 2017 who took over the logistical aspect and collect used clothing bags from citizens. For Germany TEXAID offers the service PACKMEE, where individuals can pack their

clothes and ship them to TEXAID via various shipping companies free of charge. Here they work together with the charity organization, the German Red Cross, as their sole caritative partner in Germany. German Red Cross receives 50 percent of the revenue that is created via PACKMEE, minus shipping and logistics costs.

After the used clothes are collected through the various channels, they are sent to one of TEXAID's sorting facilities. While the industry does not shy back from technological advancements, human resources are still the single most important aspect in the sorting process. Precisely because the human eye is so important and difficult to replace here, a future with large additional quantities of used clothing, which is not unlikely, has to be viewed with caution. TEXAID's sorting is slightly more finetuned than the industry average, with 65 percent of clothes being reused (compared to the 62 percent average in Germany). Another 15 percent are repurposed into cleaning rags and 15 percent more are recycled for their material. The rest gets "recycled" thermally.²⁶

The German Red Cross – an example for a charitable textile recycling organization

Collecting used clothes and redistributing them to people in need has been a core activity for the German Red Cross since its beginnings.²⁷ The economic aspects of textile recycling on the other hand, have been relevant for much shorter than their relief counterparts.

The German Red Cross (GRC) today has different channels through which it works with used clothing. The collection process works similar to that of commercial textile recyclers. Containers are once more the primary way of collecting clothes, with street collection becoming less and less common.²⁸ Besides that, people can directly donate their used garments to GRC secondhand stores that have been popping up in more and more cities, where they are sorted on location and then directly resold if the quality is adequate.²⁹ These secondhand stores operate very much like "normal", non-charitable shops and are not only geared towards people in need, but to everybody who is interested in secondhand goods. Besides these shops, the GRC also operates stores that are specifically targeted towards people in need. Individuals can go there and receive clothing either for free or a small donation.³⁰ If someone wants to make sure that their used clothes directly help a needy person, bringing them to one of these stores is the way to go. The quality of clothes that are donated in this way is also better on average than those collected via containers.³¹

Like the charitable organizations that founded TEXAID in Switzerland, the German Red Cross also realized that they need professional support and expertise to help with their textile recycling endeavors. Uwe Schwarz, who was a regional GRC manager from 1977 on and became known as the "Rag Collector of the Nation", talks about the beginnings of this relationship. It dates back to a flood disaster in Hamburg in 1963 where relief supplies were handled improperly. Regional GRC associations, without the federal association at first, then decided to cooperate with specialized firms to avoid problems like that in the future. Schwarz helped to streamline the process of textile recycling for the GRC in the 1980s. He also worked closely with the Red Cross of the GDR later in the decade and helped with the integration process. In 1996 the regional Red Cross associations decided to take the same path as their Swiss counterpart two decades before and founded their own textile recycling business, the *ProStoff Textilverwertungsgesellschaft*. Its goal was to ensure that within two or three years at least half of the independently operated Red Cross associations would use the firm to market their used clothing articles. This requirement could not be met though and thus the business was liquidated shortly after.³² This of course did not end GRC's involvement with professional textile recycling. As we have seen, today they work together with TEXAID for example, but also with more than 15 other companies like them.³³ The Red Cross also works with the fashion brand ZARA since 2020. GRC collection boxes are placed in ZARA stores, where customers can drop off their old clothing items.³⁴

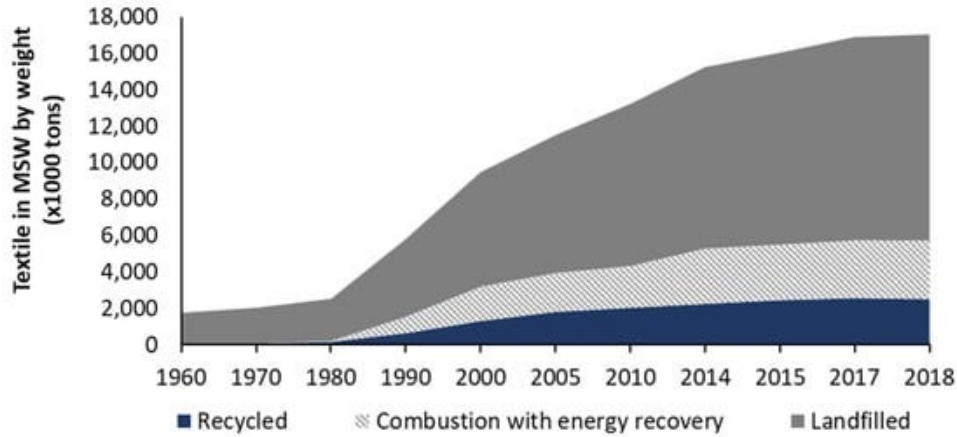


Alternatives to “Classic” Textile Recycling

Besides through the classic channels, trade in used clothing has surged in the private sector. Be it out of environmental or anti-consumption motivation, more and more people today are fed up with the practices of fashion giants and look for alternatives. Internet platforms such as *Vinted* (until 2021 *Kleiderkreisel*) or *eBay* offer marketplaces where individuals can buy and sell secondhand clothing. Another recent trend in the struggle for sustainability are so-called clothing exchange parties. These are often organized by private persons and function – other than online platforms or secondhand stores – predominantly without money, they rely on bartering.³⁵

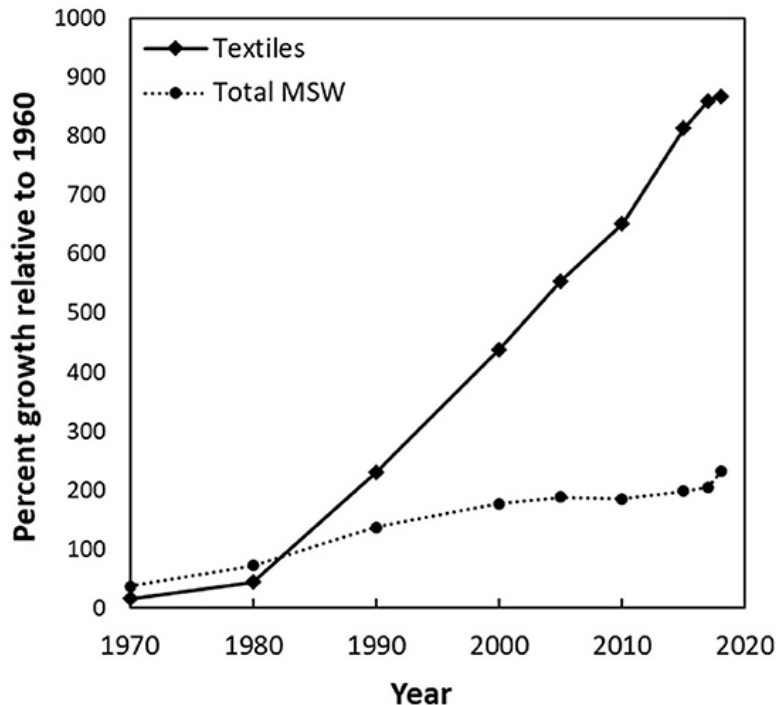
Appendix

Graph 1: Textile Waste in the USA by form of deposit, 1960-2018



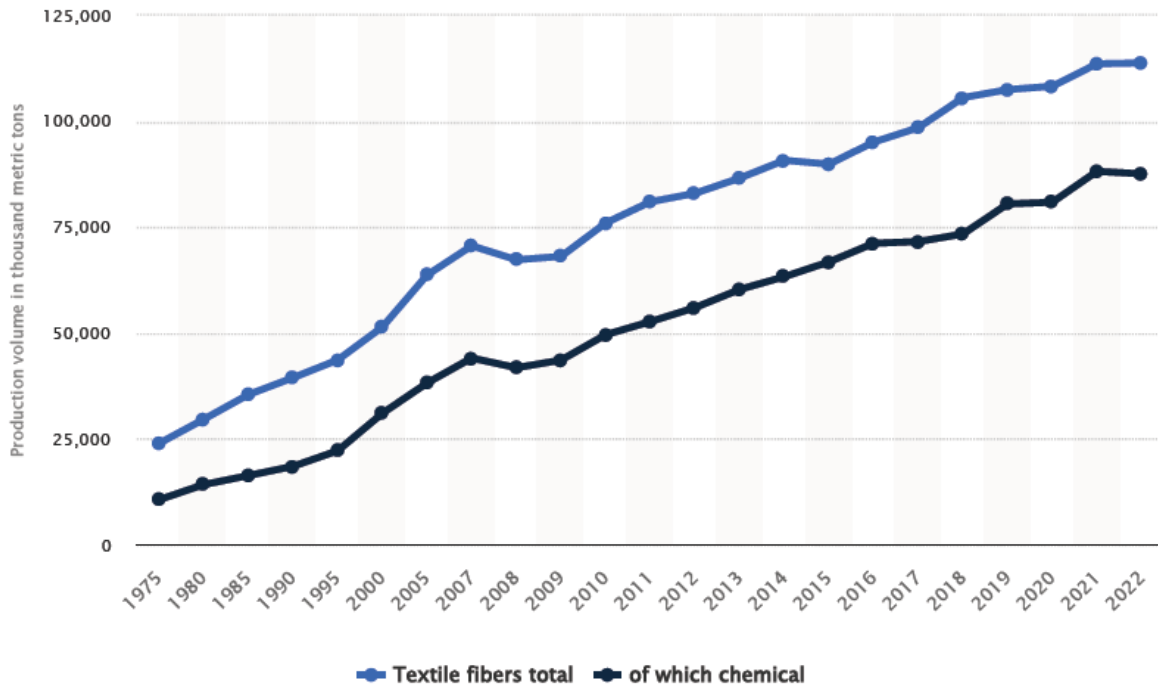
Labayen, Jeanger & Labayen, Idefonso & Yuan, Qiuyan. (2022). A Review on Textile Recycling Practices and Challenges. *Textiles*. 2. 174-188. 10.3390/textiles2010010

Graph 2: Growth rate of textile waste in comparison with Municipal Solid Waste (MSW) in the USA



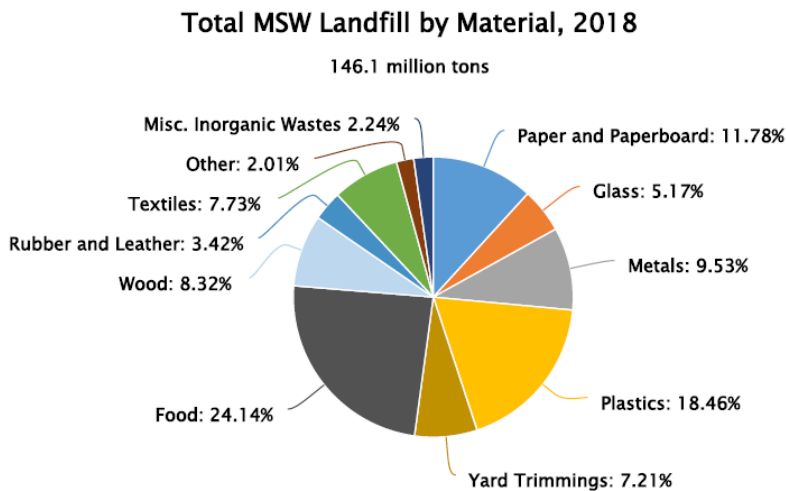
Percent change since 1960 of textile waste and total municipal solid waste (MSW) generation in the U.S., based on EPA data ([US EPA, 2020](#); [Code of Federal Regulations, 2022](#)).

Graph 3: Production volume of chemical and textile fibers worldwide from 1975 to 2022 (in 1,000 metric tons).



Industrievereinigung Chemiefaser, 2023, <https://www.ivc-ev.de/sites/default/files/informationmaterial-dateien/IVC%20Jahresbrosch%C3%BCre%202023.pdf>

Graph 4: Total municipal solid landfill by material, USA 2018



Facts and Figures on Materials, Wastes and Recycling, US EPA, 2018. <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Generation>

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