

### Abstract

Clothing shopping can be a burden when trying to find the right garments but there are simplicities to it such as new clothes being produced at extremely high rates. Fast fashion is “inexpensive and widely available of-the-moment garments” (Bick, Halsey, and Ekenga). Styles come and go but the synthetic materials the clothes are made up of never leave the Earth after disposing them. A startling 85% of the textiles made in the US will never decay (Schlossberg). Fashion trends go through cycles every so often meaning the clothing from that trend has the same lifespan as the trend lasts. With social media having a big impact in today’s fashion world, trends can last as little as a few weeks. There are ways that are becoming more mainstream that are helping shoppers become more sustainable. These include buying second-hand, shopping small businesses, and eco-friendly sustainably made brands. Some alternatives can be more difficult for the bargain shoppers such as sustainable brands, but second-hand shopping is a price conscious alternative for anybody. With denim being a more problematic item to produce and more than 1.7 billion pairs are produced yearly (Moorhouse), we must find alternatives to buying new. In order to make fashion more sustainable, the work must be done as a collective between the consumers and producers. We must lengthen the life cycle of clothing so that it moves from life to life, redesigned and reinvented.

### Recycling Old Clothes

- Only about 1/5<sup>th</sup> of the clothes donated to second-hand stores are directly sold in-store. You may think that’s not a lot but with the amount of overflow constantly coming in, there is not enough people in America to be able to absorb that amount of product.
- The rest of the clothing is sold per pound to textile recyclers. According to figures from Trans-America, “about 30% of these textiles are turned into absorbent wiping rags for industrial uses, and another 25-30% are recycled into fiber for use as stuffing for upholstery, insulation, and the manufacture of paper products” (Claudio 2007).
- From the clothing that cannot be recycled, 45% of textiles are sent to countries that are developing nations. These countries will take bails of clothing and sell them at second-hand markets (Figure 4). Some people at those markets will buy large amounts of clothing and resell at another market in a smaller city.
- Although recycling has its upside, “the real impact will come from creating new circular business models that account for the life cycle of a garment and design in the initial concept” (Moorhouse 2020). This includes creating more sustainable fabrics and using organic materials.



Figure 4: A woman at a second-hand market in Nairobi, Kenya. These clothes are sold per piece or by weight. (Claudio 2007)

### Impacts of Materials and Production

- The fashion industry is one of the most highly polluting industries.
- Cotton is widely used in materials. There are many downfalls to using cotton such as the water usage to be able to irrigate the cotton being grown.
- One of the most polluting stages is the cultivation of cotton, which is the most widely used fiber in the sector.
- Cotton cultivation accounts for 2.6% of global water use and requires large amounts of pesticides and fertilizers, which pollute groundwater, air, and soil.
- Along with the natural fibers, there are synthetic fibers such as polyamide and acrylic made from petrochemicals.
- Most of these fibers such as nylon can take decades to decompose. Synthetic fibers will also break down in your washing machine and cause microplastics in the oceans.

### Where does the climate impact come from?

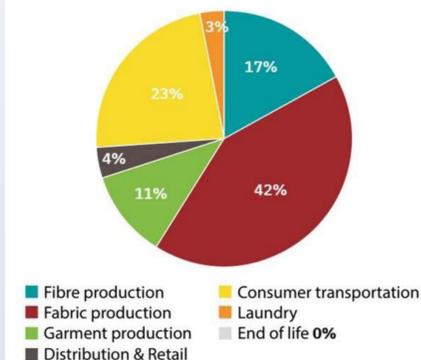


Figure 2: Climate impact for each stage in producing and processing fabrics and clothing (Carlile 2019)

Processing sub-category	Average water consumption for various types of fabric	
	Water consumption (m <sup>3</sup> /ton fibre material)	
	Minimum	Median
Wool	111	285
Woven	5	114
Knit	20	84
Carpet	8.3	47
Stock	3.3	100
Non-woven	2.5	40
Felted fabric finishing	33	213

Figure 1: Water usage for each fabric type in m<sup>3</sup>/ton (Mukherjee 2015)



Figure 3: Bails of clothing that are sent to be resold in under-developed countries

### The Need for Sustainability

The emissions from the fashion industry are rising at alarming rates.

The transportation sector is a huge addition to the emissions and buying locally can reduce these amounts.

As shown in the Waste Hierarchy graph (Figure 6), rejecting old textiles to a landfill (Figure 7) has the largest environmental impact and the lowest value to our lives sustainably. Recycling is in the middle making the value higher than rejecting to a landfill but still not high enough on the graph. The best we can do for the value of our lives is to reduce and eliminate. We must create less waste, create less emissions, and increase the local economy by choosing local fashion over fast fashion.



Figure 6: The waste hierarchy stating the importance to each way products are reduced, reduced, and recycled. (Mukherjee 2015)



Figure 7: A waste pile of clothing and various textiles in a landfill. (Schlossberg 2019)

### Benefits of Organic Materials

Using sustainable fibers will be key to reducing the environmental impact the fashion industry puts on the Earth.

- Natural and sustainable fibers include but are not limited to: Organic cotton, bamboo, flax, hemp, etc.
- Organic cotton has many environmental benefits such as:
  - Improved water, soil, and air quality
  - Increased biodiversity
  - Eco-balance between pests and insects
- Bamboo is a natural fiber that grows without pesticides or irrigation and grows naturally with rainfall in 3-4 years
- The approximate yield that you would get from one acre of bamboo is 10 times more than cotton fields



Figure 5: The systematic approach to growing organic cotton (Ali and Sarwar 2010)

### Conclusion

Being conscious in our decisions and choices can make a bigger difference than we think. Reducing and eliminating our habits to go for the quick and easy route can be beneficial as well. Choosing local and organic over foreign and least expensive, can help by reducing emissions in every sector (Figure 2). With only a fifth of clothes being recycled, we need to rethink what we should recycle and where we should donate. Donating to a well-known second-hand shop may not be as beneficial as donating to a local church or homeless center. Again, consciousness within ourselves is the first step that is going to bring emissions down and the well-being of the planet up.

### References

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