

# The environmental impacts of fast fashion

Louis Mitchell

University of Essex

---

## **Abstract**

The fast fashion industry has seen exponential growth in recent years, revolutionizing the way we shop for and view clothing. However, this rapid expansion has come at a significant environmental cost. This blog delves into the profound negative impact the fast fashion industry is having on the environment, from manufacturing and distribution all the way up to the post-consumption stages. The blog will then discuss the potential solutions and regulations that can be put into place to rectify the situation.

**Keywords:** Fashion, environment, environmental, pollution, textile

## **Introduction**

It has been widely published and documented for years that the fashion industry has had a profoundly negative environmental impact (Yusuffand Sonibare, 2004). For example, in 2014 The European Environmental Agency ranked the fashion industry as the fourth most detrimental industry to the environment (Paland Gander, 2018). However, the fashion industry has only grown over recent years, and the internet has propelled us into the age of fast fashion. This business model produces low-quality textiles in excessive amounts to maximise profits and adhere to the latest trends (Morgan and Birtwistle, 2009). We can order our clothes and have them delivered to us from the comfort of our homes, but at what cost?

## **Manufacturing**

Fast fashion is built upon fast and cheap manufacturing to meet the elevated levels of demand for clothes that are hardly worn (Niinimäkiet al., 2020). Fossil fuels like coal and natural gasses are the main source of energy for the manufacture of textiles (Farhana, 2022). This is problematic as their combustion releases greenhouse gases that contribute to climate change. Nitrogen oxides are also

## The environmental impacts of fast fashion

released into the atmosphere, which pollutes the air and results in the formation of smog and acid rain (EPA, 2022). The dyeing of textiles is, without a doubt, the stage of manufacturing that is most damaging. It is the number one polluter of clean water, and according to The World Bank, 17 to 20 percent of industrial water pollution in China comes from textile dyeing. This is due to the process being extremely chemically intensive; 72 different toxic chemicals have been identified in water exclusively from textile dyeing, 30 of which cannot be separated (Kant, 2012). This pollution disproportionately affects vulnerable communities, such as poor fishermen who make a living from fishing in these now-polluted waters (Yuan et al, 2021). The chemicals inhibit the infiltration of sunlight which stops photosynthesis from occurring, which reduces the oxygen levels in the water and hinders marine life (Reible, 2005). The chemical run-off also pollutes drinking water, resulting in human illnesses. Moreover, when polluted waters flow through fields it reduces soil fertility, this can be especially devastating to economies that rely on agriculture; and it does not stop there. Once these chemicals have evaporated, they pollute the air causing harm to unborn children (Kant, 2012) and if all this wasn't enough, not only does the textile industry pollute water but it uses 79 trillion litres of water annually (Niinimäki, *et al.*, 2020). This strain on the environment is nothing short of extreme.

### Distribution

The distribution sector of the fashion industry is also having adverse effects on the environment. The first stage of distribution is packing. Most fast fashion brands use plastic packaging, which takes up to 1,000 years to degrade and likely will end up in the streets, oceans, rivers, and lakes, killing wildlife (Mark, 2022). Once the goods are packed, they need to be transported. The EU Commission has stated that from 2016 to 2030, the number of active ships will have doubled (Delft, 2019). This increase in active ships is largely imparted to the growth of fast fashion brands such as Shein, Boohoo and Fashion Nova, which ship worldwide. The UK government defines particulate matter (PM) as everything in the air that is not a gas and therefore consists of various chemical compounds and materials, some of which can be toxic (GOV.UK, 2022). Shipping is a significant contributor to air pollution as it puts particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>) and gaseous pollutants (SO<sub>2</sub>, NO<sub>x</sub>, VOCs, CO<sub>x</sub>) into the atmosphere (Contini et al, 2021). For this reason, shipping was placed within the World Health Organization's (WHO) "Health risks of air pollution in Europe" (HRAPIE) project, where it was ranked as the third most harmful air pollution emission source (Héroux, 2015).

## The environmental impacts of fast fashion

These toxic pollutants are proven to increase respiratory issues such as inflammation, aggravation of asthmatic symptoms, lung cancer, cardiovascular disease, and acute respiratory mortality (Broome, 2016). Furthermore, it has been estimated that there are 60,000 annual deaths due to the shipping industry's PM emissions (Corbett, 2007). Some companies such as UPS, FedEx, DHL, and TNT also use aeroplanes to distribute garments (Akram, 2023). Aircraft operations also produce NO<sub>x</sub>, PM, and CO<sub>2</sub> (Transport & Environment, 2022); however, air freight produces 31 times more CO<sub>2</sub> emissions than sea freight (Moore, 2021), meaning air transport has a much larger impact on global warming per trip. Once the garments have reached the desired country, the main modes of transportation are trains, cars, motorcycles, trucks, and vans which further contribute to global warming.

### Post-Consumption

We have now reached the final stage: the garments have been manufactured, packed, and delivered to the end consumer and after all the energy, resources, and time put into making these products, they are discarded after only seven or ten uses (EPA, 2022). The amount of post-consumer textile waste (PCTW) has been increasing since 1960, and by 2018 more than 34 billion pounds of PCTW was recorded in the US alone. Only 15% of which was recycled, 19% was incinerated, and the rest was sent to landfills (DeVoy, 2021). Landfills are known for their negative impacts on biodiversity, water pollution, and greenhouse gas emissions (Bick et al., 2018), and they did not garner this reputation without reason. Natural habitats are destroyed in the creation and expansion of landfills (Aiama et al., 2016). In addition, the decomposition of PCTW releases methane and carbon dioxide which are vital contributors to climate change (James, 1977), and leachate from landfills runs into waterways, becoming a detriment to human health (Salem et al., 2008).

### Solutions

The environmental cost of the transition into fast fashion comes at a high price, and is resulting in serious environmental decline. Nevertheless, something can still be done. Regulations such as the Global Sulphur Cap which limits the sulphur levels of fuel oils used aboard ships are essential to reversing this damage (Bilgili, 2021). After the cap was implemented an emissions reduction equivalent to 8.5 million metric tons of sulphur dioxide was observed (Tauchi et al 2022). However, these restrictions must be implemented cautiously as they have severe social and economic

ramifications. 50% of Pakistan's exports are from the textiles industry, and that figure rises to 55% in India (Niinimäki et al., 2020). Implementing the necessary regulations will be an excellent first step, but to truly resolve this issue, the focus must be on the end consumer. The frivolous consumption habits of consumers, carelessly discarding clothing after ten or fewer uses are what has facilitated fast fashion culture. Like any competitive market, supply is just meeting demand, so for the environmental damage caused by manufacturing and distribution to be reduced, society needs to become less wasteful. Further educating people on the impacts of their wastefulness could also help to achieve a reduction in consumption, whether this is through government-run presentations in schools or online campaigns which implore individuals to read up on the situation. In an article published by The Imperial College London, the author speaks about the thought-provoking idea of a zero-waste society which I suggest for further reading on the topic of reducing waste in our society (Czyzewsk, 2020).

### References

- Aiama, D., Carbone, G., Cator, D. and Challender, D., (2016) *Biodiversity risks and opportunities in the apparel sector*. International Union for Conservation of Nature: Gland, Switzerland.
- Akram, S. (2023) Types of aeroplanes used in air cargo - world options, World Options - Shipping. Available at: <https://uk.worldoptions.com/news/types-of-aeroplanes-used-in-air-cargo> (Accessed: 13 July 2023).
- Bick, R., Halsey, E. and Ekenga, C.C. (2018) 'The global environmental injustice of fast fashion', *Environmental Health*, 17(1), pp. 1-4.
- Bilgili, L. (2021) 'Life cycle comparison of marine fuels for IMO 2020 Sulphur Cap', *Science of the total Environment*, 774, p.145719.
- Broome, R.A., Cope, M.E., Goldsworthy, B., Goldsworthy, L., Emmerson, K., Jegasothy, E. and Morgan, G.G. (2016) 'The mortality effect of ship-related fine particulate matter in the Sydney greater metropolitan region of NSW, Australia', *Environment International*, 87, pp. 85-93.
- Contini, D. and Merico, E. (2021) 'Recent advances in studying air quality and health effects of shipping emissions', *Atmosphere*, 12(1), p. 92.
- Corbett, J.J., Winebrake, J.J., Green, E.H., Kasibhatla, P., Eyring, V. and Lauer, A. (2007) 'Mortality from ship emissions: a global assessment', *Environmental Science & Technology*, 41(24), pp. 8512-8518

## The environmental impacts of fast fashion

Czyzewsk, A. (2020) Imagine a zero waste society – what’s stopping us?, Imperial College London. Available at: <https://www.imperial.ac.uk/Stories/zero-waste-society/> (Accessed 13 July 2023).

Delft, C.E. and Directorate-General for Climate Action (European Commission) (2019) *Study on methods and considerations for the determination of greenhouse gas emission reduction targets for international shipping*. Available at: <https://cedelft.eu/publications/study-on-methods-and-considerations-for-the-determination-of-greenhouse-gas-emission-reduction-targets-for-international-shipping/> (Accessed: 13 July 2023).

DeVoy, J.E., Congiusta, E., Lundberg, D.J., Findeisen, S. and Bhattacharya, S. (2021) ‘Post-Consumer textile waste and disposal: Differences by socioeconomic, demographic, and retail factors’, *Waste Management*, 136, pp. 303-309.

Dottle, R. and Gu, J. (2022) The real environmental impact of the Fashion Industry. Available at: <https://www.bloomberg.com/graphics/2022-fashion-industry-environmental-impact/> (Accessed: 13 July 2023).

EPA. (2022). Sources and Solutions: Fossil Fuels. U.S. Environmental Protection Agency. Available at: <https://www.epa.gov/nutrientpollution/sources-and-solutions-fossil-fuels> (Accessed: 13 July 2023).

Farhana, K., Kadirgama, K., Mahamude, A.S.F. and Mica, M.T. (2022) ‘Energy consumption, environmental impact, and implementation of renewable energy resources in global textile industries: an overview towards circularity and sustainability’, *Materials Circular Economy*, 4(1), pp. 1-16.

GOV UK (2022) Concentrations of particulate matter (PM10 and PM2.5) Available at: <https://www.gov.uk/government/statistics/air-quality-statistics/concentrations-of-particulate-matter-pm10-and-pm25> (Accessed: 13 July 2023).

Héroux, M.E., Anderson, H.R., Atkinson, R., Brunekreef, B., Cohen, A., Forastiere, F., Hurley, F., Katsouyanni, K., Krewski, D., Krzyzanowski, M. and Künzli, N. (2015) ‘Quantifying the health impacts of ambient air pollutants: recommendations of a WHO/Europe project’. *International journal of public health*, 60(5), pp. 619-627.

James, S.C. (1977) ‘Metals in municipal landfill leachate and their health effects’, *American Journal of Public Health*, 67(5), pp. 429-432.

Kant, R.(2012) ‘Textile dyeing industry: An environmental hazard’, *Natural Science*, 4(1),pp. 22–

Mark (2022) *Is plastic packaging bad for the environment?*, ITP Packaging. Available at: <https://itppackaging.com/is-plastic-packaging-bad-for-the-environment> (Accessed: 13 July 2023).

## The environmental impacts of fast fashion

Mohamed, H.A.B. and Arof, A.M. (2020). 'Impact of sulphur cap 2020 regulation on the shipping industry', *Marine Frontier*, 11(2), pp. 42-50.

Moore, K. (2021) *Air Freight or sea freight?* Available at: <https://www.sourceful.com/blog/air-freight-or-sea-freight> (Accessed: March 27, 2023).

Morgan, L.R. and Birtwistle, G., (2009). An investigation of young fashion consumers' disposal habits. *International journal of consumer studies*, 33(2), pp.190-198.

Niinimäki, Kirsi, et al. (2020) 'The environmental price of fast fashion', *Nature Reviews Earth & Environment*, 1(4), pp. 189-200.

Pal, R. and Gander, J., (2018) 'Modelling environmental value: An examination of sustainable business models within the fashion industry', *Journal of cleaner production*, 184, pp. 251-263.

Reible, D.D. (2005) 'Hazardous substance research centers/South and South-West outreach program environmental hazards of the textile industry', *Business Week*, p.910.

Salem, Z., Hamouri, K., Djemaa, R. and Allia, K. (2008) 'Evaluation of landfill leachate pollution and treatment', *Desalination*, 220(1-3), pp.108-114.

Tauchi, M., Yamaji, K., Nakatsubo, R., Oshita, Y., Kawamoto, K., Itano, Y., Hayashi, M., Hiraki, T., Takaishi, Y. and Futamura, A., (2022). Evaluation of the effect of Global Sulfur Cap 2020 on a Japanese inland sea area. *Case Studies on Transport Policy*, 10(2), pp.785-794.

Transport & Environment (2022) *Airplane Pollution*. Available at: <https://www.transportenvironment.org/challenges/planes/airplane-pollution> (Accessed: 13 July 2023).

Yuan, B., Yue, F., Wang, X. and Xu, H., (2021). 'The impact of pollution on China marine fishery culture: an econometric analysis of heterogeneous growth', *Frontiers in Marine Science*, 8, p.760539.

Yusuff, R.O. and Sonibare, J.A. (2004) 'Characterization of textile industries' effluents in Kaduna, Nigeria and pollution implications', *Global Nest: International Journal*, 6(3), pp. 212-221.

©Louis Mitchell. This article is licensed under a Creative Commons Attribution 4.0 International Licence (CC BY).