

Environmental Commission

Reducing the impact of the garment and textile industry on the environment



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| Forum | Environmental Commission |
| Issue: | Reducing the impact of the garment and textile industry on the environment |
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| Position: | President of the Environmental Commission |

Committee

The United Nations Environmental Commission is a Model UN commission only. However, the EC enjoys similar mandating powers to that of the General Assembly. The closest UN body to the EC is UNEP (United Nations Environment Programme). What this means in terms of this report is that we can consider and approve solutions from countries and NGOs, and we can take action in the case of a serious threat to the environment and/or social risk regarding workers in the garment and textile industry.

Introduction

By now the idea of helping and saving the environment has become a global mission. Climate change threatens this world more than ever before and climate action is now a must. The Textile and Garment Industry is responsible for 8-10% of world greenhouse gas emissions. The Industry consumes more energy than the aviation and shipping industry combined, making it accountable for 10% of global carbon emissions.

Given the Industry's size and reach, these unsustainable models and practices are felt very strongly in the affected areas. The global industry needs to examine their levels of consumption and methods of production and address the hotspots (harmful and problematic stages) in the lifecycle of a product. It will highlight the most problematic stages in the life cycle of the clothing piece. It also allows us to accurately understand the main sources of environmental impact or social risk.

In a world where technology has taken mankind to the moon, allowed man to modify the human genome, and challenge the very rules of nature. Technology is also destroying our world, and sometimes the one and only thing that prevents man from sustainable development is man himself. So how can the global textile and garment industry continue to grow while addressing the environmental need to buy less?



Definition of Key Terms

Environment

The environment is the sum of all external conditions affecting the life, development and survival of an organism. In the context of this report, environment refers to the impact the textile and garment industry has on the environment. (e.g. various forms of pollution, impact on people)

Textile Industry

Primarily concerned with the design, production and distribution of yarn, cloth, and clothing. Relies on the chemical industry for natural and synthetic materials.

Garment Industry

Summarises the types of trade and industry along the production and value chain of clothing items. Starting with the textile industry, then the fashion industry (responsible for the interaction between retailers and consumers for the purchase of clothes and accessories) etc. It is the sum of all industries involved in the lifecycle of an item.

Fast Fashion

Inexpensive clothing produced rapidly by mass-market retailers in response to the latest trends.

Sweatshop

A factory or workshop, especially in the clothing industry, that violates two or more labour laws. Manual workers are employed at very low wages for long hours and under poor conditions.

Recycling

The process of converting waste into reusable material. The recyclability of a material is dependent on its ability to reacquire its original properties from its original state. The idea of energy recovery is included in the definition for the purpose of this report.



General Overview

The global industry uses roughly 93 billion cubic metres annually, which would be enough water to fill 37 million Olympic swimming pools each year. It takes an estimated amount of 20,000 litres of water to produce a pair of jeans and a t-shirt. It would take the average individual human more than 13 years to drink this amount of water. If one of the most, if not the most simple outfit out there requires that amount of water, the global industry is drinking up the world's scarce water.

In a country like Eritrea where 80.7% of the population lack basic water services, levels of water consumption in the garment industry seems absurd.

Global averages have also found that only around 20% of the world's sold clothes are worn on a regular basis. This figure is most likely due to the concept of fast fashion which has created a product people don't need by stimulating demand and creating this sense that if you don't buy it now, it won't be available later, and partly because of this every year \$500 bn USD are lost due to clothe underutilisation and lack of recycling; a figure larger than some countries' GDP.

History on the topic

Starting from the modern beginning of fashion, in the 1800s clothing was made by the women of the household in almost all parts of the world. And for the more wealthy, it was custom made by tailors or seamstresses. During this period clothes were recycled very often. As soon as something broke it would be sewn back together or a summer jumper would be unsewn and converted into a winter jumper for the following months. There was barely any waste.

The first real need and production of what was called ready-to-wear garments was stimulated by the needs of sailors, minors, and even slaves. These ready to wear garments were still made by hand, but they laid the foundation of what would eventually become one of the biggest industries in the world today. This is where clothing waste would start to come in.

The industry grew enormously in the mid to late 19th century due to various reasons. The main one; a major increase in capital. This increase in mechanization was a result of the industrial revolution that had ended just a few decades before in the 1840.

Another factor that gave the industry a boost was the new and updated set of measurements and men's sizing that had really developed. It started in the U.S.A. when the army collected millions of



samples from men around the country during the American Civil War. A few years shortly after that, women's sizing also became highly developed.

However, what really gave this upcoming industry its final boost to really secure itself as a building base for a much larger industry in the future, was the great depression of 1873. This was a huge contributing factor to the acceptance of ready-to-wear garments because it was a cheaper and still satisfactory alternative compared to custom tailored clothing. Because of its cheap prices, the incentive to try and save/rescue the clothes once they were damaged decreased because it was more time consuming and almost more expensive to repair the clothes rather than buy new ones.

Current situation

Today fashion contributes to global warming and climate change almost like no other industry. In China it is said that you can tell what colour is going to be trending next season by the colour of the rivers. The biggest example being the Jian river which turned red after an illegal dye dump from a nearby factory. The process of chemically dyeing fabrics is harmful in many different ways. Aside from the polluting aspect, chemical dyeing can cause severe physical harm to people in contact.



Synthetic dyes

During the dyeing process of fabrics not all of the dye is absorbed. Approximately 10-15% of dye is released as waste into the environment. The waste dye is mainly dumped into rivers or other large bodies of water.

When dumped in water, synthetic dyes can cause the death of aquatic life, the severe ruining of soils used for crop and food growth and potentially serious risk of poisoning public drinking water. Something else worth noting is that the public's perception of water quality is greatly influenced by the colour of the rivers, and therefore the removal of coloured dye from wastewater is regularly seen as more important than removing other harmful organic substances that are also soluble but are colourless.

As previously mentioned, a pair of jeans and a plain t-shirt require approx. 20,000 litres of water to make. However, a more complex t-shirt that goes through the dyeing process more often, can require 16-18 litres of water on its own which means that on average, 36,287,390Kg



- 45,359,237Kg of dye is released into the environment annually. Chemical dye is the second largest water polluter on our planet.

Another harmful aspect is the fact that clothing is in contact with our largest organ, our skin, for very long periods of time. We are always wearing clothes, and therefore harmful substances from dyes can be absorbed by the skin. Especially in hot conditions when skin pores are open to allow perspiration. This prolonged contact has been shown to even cause tumours as some dyes contain carcinogens due to the large amount of chemicals that make up the specific dye.

Other health risks caused by textile dyes include skin irritation, irritation to the upper respiratory tract, allergic reactions. Blindness, and several respiratory diseases.

Current situation II

Buying clothes has never been easier. With just the click of a button on your favourite clothing website you can purchase as many garments as you want. With new trends constantly appearing, disappearing and even reappearing, the garment and textile industry have to find a way to keep up. By reducing costs on materials, machinery, workforce, and more, it allows the brands to rapidly produce clothes and meet consumer demand. It is estimated that by the year 2050, clothing sales could more than triple. At this rate the industry would need 35% more water and 50% more land.



In the United Kingdom more than 300,00 tonnes of clothes end up in landfill each year. It's the fastest growing category of waste in the country each year. If clothes don't end up in landfill or being incinerated, they might have previously been shipped to China, which over the years has become one of the biggest destinations for textile recycling. However, China has become tired of this. In 2018, Chinese authorities banned the import of used fabrics and clothing. This ban could potentially make the industry even less environmentally friendly.



Most often the negative effects of the garment and textile industry are felt in third world countries as most of the production takes place abroad. From the growing of raw materials, spinning them into fibres, weaving the fabrics, to dyeing them.

The effects the industry is having on the environment are getting worse as the industry continues to grow. The Industry was estimated at around \$920bn USD in 2018 globally and projected to reach an estimated \$1,230bn USD, showing a steady CAGR (Compound Annual Growth Rate) of 5% during its forecast period. But there are companies that are starting to grow that encourage an environmental approach towards consumer behaviour in the fashion industry.

Fast fashion

In terms of fast fashion, the idea of it originated from a concept based on a manufacturing model named “quick response” which had been developed in the U.S.A. in the 1980’s. The model then progressed to the market-based model that we know today as “fast fashion” during the late 1990’s and early 2000’s.

Some claim it started when the Spanish fashion brand Zara first opened stores in New York City in 1990. Zara’s mission was to take only 15 days for a piece of clothing to go through the whole design stage and end up in stores ready to be sold. That’s when people started hearing the term fast fashion.

Fast fashion is allowing consumers to buy more, however, they are wearing these garments less often and disposing of them at an unprecedented rate. At a global level, growing middle classes in NEE’s (Newly Emerging Economies) and emerging markets are hungry for more and cheaper fashion. For large brands there’s this sort of race to the bottom in terms of quality and price that is just an unsustainable model in today’s world.

The idea of fast fashion became extremely appealing to large manufacturing and fashion brands which still exist today because of the ability to offshore manufacturing into, primarily Southern Asia, and other countries where labour costs were and still are extremely low due to the constant and systematic exploitation of workers in terrible conditions. These places are called Sweatshops.

Sweatshops



Humans form part of the environment, and fast fashion is having a huge impact on the people working in sweatshops and people in surrounding areas as well. In a lot of countries, what are now sweatshops might have previously been privately owned textile mills. However, after some mills moved to the public sector the manufacturing technology in some sweatshops had not been replaced and was found to be 35+ years old. Due also to the lack of maintenance these machines pose a real risk to the workers safety.

Better, newer machines cost a lot more money and due to the lack of innovation, money, and incentive to improve it is almost impossible to find a sweatshop with up to date machinery and proper maintenance.

China has approximately 100,000 textile factories. In 2019 70,000 workers died due to workplace accidents. 8,600 of which are in textile factories. That's around 23 people a day.

So why do large brands not recycle as much as the population wants them to? Or even as much as they say they do? Simply put, the technology just isn't there yet. To turn used clothes into virgin fibres takes an enormous amount of energy that isn't exactly sustainable either.

Most of our clothes are made from blended fibres. For example, a jumper might be made from acrylic, cotton, and wool all mixed together. This makes it very hard to recycle because you have to separate all of these fibres that have been woven together. Another issue is that the main form of textile recycling, called Mechanical recycling, involves chopping up all these fibres which severely degrades the quality of the material. Therefore, only a limited amount can be used in clothing. Especially since brands have already decreased material quality to cut costs.

However, the rest of the fibres that are not in good enough condition to be re-used in garments can be used as a form of insulation as has been done in previous cases throughout the years.

Major brands have started to set up recycling bins around their stores. However, they're not as effective as one might think. Only 1% of those clothes are recycled. Something that is relatively more effective is the use of outlets. Outlets are clothing stores that sell older items from previous seasons from various different clothing brands. However, some brands that are more expensive, choose not to give left over clothes from the previous seasons to these outlets. These clothes go straight to incinerators.



The global levels and methods of waste and water consumption need to be reduced drastically in order to create and be able to maintain a more sustainable future for the world whilst not limiting the garment and textile industry redundantly.

Major Parties Involved

UNEP (United Nations Environment Programme)

The UNEP is the UN organ responsible for tackling environmental issues that come up in the UN system. It has contributed to enforcing governmental laws concerning regulations of sustainable practices in the textile and garment industry. It has also conducted several assessments on the garment life cycle and identified hot spots. With this data it has encouraged countries to adopt more sustainable methods.

UN Fashion Alliance

An alliance made up of 8 organizations including the International Labour Organization (ILO), the United Nations Development Programme (UNDP), and the UNEP. Trying to put the brakes on fast fashion. Addressing its environmental impacts by collaborating with its member organisations to find solutions

United States of America

The USA is the third largest exporter of garments in the world with \$6.5 bn USD in export value. The US has a lot of major brands based and originally from its country that have been under criticism and investigation for unsustainable practices and violations of labour laws. However, the US itself believes in a more sustainable future and wants to implement more strict regulations on the textile and garment industry.

People's Republic of China

China is the world's number 1 largest exporter of the textile and garment industry, and this industry plays an important role in the escalating Chinese economy. It has an export value of \$137.41bn USD. It currently has a 31.6% share of the world's apparel export value. China has cracked down on a lot of factories that were not abiding by the regulations for sustainable production and also violating



labour laws. However, China does want to keep profiting the way they currently do and be able to get more control over the market.

People’s Republic of Bangladesh

Bangladesh is the second largest exporter of garments with an export value of \$34.3bn USD in 2019 and \$27.95bn USD in 2020. Bangladesh has become an even better, more attractive place for large brands due to the lack of regulation and its extremely low wages. Especially since in China wages are starting to increase.

Timeline of Key Events

| Date | Description of event |
|----------------------------------|--|
| 1760-1840 | The first industrial revolution |
| Approx. 1853 | First ready-to-wear garments made |
| 1860-1900 | Rise of the ready-to-wear garment industry |
| April 9 th , 1865 | End of the American Civil War and first sizes and measurements charts |
| 1873 | Great Economic depression. Start of global acceptance of ready-to-wear clothes |
| June 5 th , 1972 | United Nations Environment Programme established |
| March, 1989 | Zara opens its first store in NYC. Modern introduction to fast fashion |
| 1990-2005 | The exponential rise in fast fashion popularity and availability |
| September, 2015 | United Nations Sustainable Development summit & adopted January 1 st 2016 |
| December 12 th , 2015 | United Nations Paris agreement is signed |



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| October 3 rd , 2018 | Chinese authorities ban import of used clothes |
| March 14 th , 2019 | UN Fashion Alliance launched |

UN involvement, Relevant Resolutions, Treaties and Events

The UNEP and the UN Fashion Alliance have been very involved in the past decades in terms of tackling the negative effects the textile and garment industry have had on the environment. With a number of UN organs, entities, and organizations intervening at different stages of the industry chain. There have also been several UN sessions in which the impacts that the garment and textile industry has on the environment have been discussed.

- UN conference on the Human Environment, June 5th 1972, Nairobi, Kenya establishes the UNEP
- UN Paris agreement, international treaty on climate change, 30th November – 12th December 2015. One of the main resolutions:
 - Protection of global climate for present and future generations of humankind, Paris, 2015 (A/RES/73/232)
- UN Sustainable Development Summit of the 2030 agenda for sustainable development
- UNEP along with all its members launches the UN Fashion Alliance, March 14th, 2019

Previous Attempts to solve the Issue

Some brands have started to come up with sustainable methods of production. The main one being, using sustainable materials. It saves a lot of energy during the production process and increases the recyclability of a product.

For example, Spain's Ecoalf is starting to make bags, clothes, and shoes, from recycled plastics and various algae. Gumdrop, an Amsterdam based company, collects gum and converts the gum into



a new rubber. The product is called Gumtech and it's now being used to make shoes. A more well-known brand, Patagonia, has been making outdoor wear made from recycled plastic bottles since 1993 strongly encouraging its buyers to only purchase what they need. Patagonia also has a customer service option which recycles and repairs their customers' old clothes. Patagonia also made headlines with one of their black-friday adverts when they asked customers not to buy their jacket in order to encourage customers to act more environmentally friendly.



In Italy there is a place called Prato. Here, there are a lot of warehouses that recycle used fabrics from garments, and they're sorted in colours. They are then specially cleaned in a process that uses less amount of energy and water compared to large industrial washing machines. In 2014 they processed around 15% of global clothes that were headed to landfill and incinerators and turned these old fabrics into something new.

On a global scale however, there is currently not enough being done by countries and organizations. In order to tackle this crisis, we all need to change our behaviours and our approach to fashion. Consumers, retailers, and manufacturers alike. Our fancy wardrobe should not come at the cost of the environment and people's lives.

The major reason brands are allowed to take advantage of people and factories is due to weak government regulations and they exploit these workers to the fullest to produce as much as they can to meet the consumer demand. The last thing large brands want is for people to buy less.

Currently, UNEP is working on a project that's called the 'Strategic Approach to International Chemicals Management (SAICM)'. This project is going to highlight important emerging policy issues as well as implement a set of objectives that will enable easier access to information for the consumer on the chemical composition of their product.

UNEP has also conducted several reviews of the textile life cycle through a 'life cycle analysis' which highlights the environmental and social impacts. They claim that the results from these reviews will enable them to create a set of "eco-innovative" solutions that will aim to tackle the most problematic and dangerous stages of the life cycle. The hotspots.



Regarding waste water pollution, in 1976 the United States of America imposed a strict regulation called the 'Resource Conservation and Recovery Act (RCRA). It gave fines and sanctions for dumping over a certain amount of waste water and pollution into healthy bodies of water.

Possible Solutions

The first possible solution is probably the most obvious one. Buy less clothes. We probably don't need everything we have. 20% of clothes are worn on a regular basis. However, when you do go and buy clothes make sure to consider the effect that clothing item has had on the environment throughout its lifecycle before you buy it. Research which brands are unethical and unsustainable. Consumers could shop at thrift stores or second-hand clothing shops and even donate to them. Donating clothes is better than throwing them away.

Large brands should examine their methods of production and also review their waste management systems. Brands should slow down on production as well. They are trying to keep up with trends but with new collections being released every other week, trends are going to keep up with that as well. Current regulations aren't working. These large fashion brands and textile brands produce with just one objective, and that is to maximize their profit. But at what cost?

It almost always leads to offshoring manufacturing to economically under-developed nations where they don't have the required means to regulate the waste and environmental impact. In a country like Bangladesh with a GDP of \$302.6bn USD, there aren't any governmental structures or regulatory bodies that have the ability to hold manufacturing factories accountable for their pollution. There isn't any standardised regulation anywhere. Even if countries like Bangladesh were to have the means to hold these factories accountable, these companies have built their success upon their ability and talent to avoid and reduce costs everywhere possible, especially in under-developed nations. But moving factories to other countries doesn't mean that only that specific country is affected. "It's a different country, but the same globe" – Ashley Lauren.



Governments should also properly enforce the regulations that are currently in place and update old regulations. Even impose new ones to be able to meet the target of the Sustainable Development goals by 2030.

Some governments have also set up collection points/textile recycling bins in order to donate to organizations or take to recycling plants. Some bins are dedicated to donating the clothes to homeless shelters, or child cancer institutions for example. However the reliability of these bins has been questioned in the past as sometimes the clothes have not ended up where promised.



Some experts have said that the Garment Industry needs a complete redesign so that it does not even produce waste in the first place.

Currently the life cycle of a garment is linear. It starts with the collection or production of the raw/synthetic materials. These then go to the manufacturing factories where the clothes are produced (dyed, woven etc). The clothes then travel to the retailers by airplane and container ships creating a large ecological footprint as well. The clothes then end up in the bags of consumers and after a while in landfill or incinerators. This whole system and life cycle is just not environmentally friendly. It is not sustainable. The model needs to become circular rather than linear. The materials; should be recycled. The manufacturers; should refurbish old clothes. The retailer; should reuse/resell what is left over. The consumer; maintain use of the garment and does all of the above.

As the technology to properly recycle the clothes and turn them back into virgin fibres, while maintaining the properties it had in its original state is not quite there yet, there is a need for innovation and research into this issue. Funding for this will also be required. Therefore, an investigation into the possible and available monetary sources should be conducted.



Bibliography

Environment, Programme. "Putting the Brakes on Fast Fashion." *UN Environment Programme*, 12 Nov. 2018, www.unep.org/news-and-stories/story/putting-brakes-fast-fashion.

European, Parliament. "Environmental Impact of the Textile and Clothing Industry. What Consumers Need to Know." *Europarl*, EU, 2018, [www.europarl.europa.eu/RegData/etudes/BRIE/2019/633143/EPRS_BRI\(2019\)633143_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2019/633143/EPRS_BRI(2019)633143_EN.pdf).

Pervin, Anis, and Tuba Toprak. "Textile Industry's Environmental Effects and Approaching Cleaner Production and Sustainability, an Overview." *Med Crave*, 2017, medcraveonline.com/JTEFT/textile-industry39s-environmental-effects-and-approaching-cleaner-production-and-sustainability-an-overview.html.

Biz, Vibe. "Global Textile Industry Factsheet 2020: Top 10 Largest Textile Producing Countries and Top 10 Textile Exporters in the World." *BizVibe Blog*, 2020, blog.bizvibe.com/blog/top-10-largest-textile-producing-countries.

United Nations. "UN Digital Library." *UNEP Industry and Environment Office, United Nations*, 1972, digitallibrary.un.org/search?f1=author&as=1&sf=title&so=a&rm=&m1=e&p1=UNEP.%20Industry%20and%20Environment%20Office&ln=en.

UNIDO. "Textile and Garment Industry." *UNIDO - United Nations Industrial Development Organization*, United Nations, 2019, www.unido.org/our-focus/creating-shared-prosperity/agribusiness-and-rural-entrepreneurship-development/textile-and-garment-industry.

Villemain, Cyril. "UN Alliance For Sustainable Fashion Addresses Damage of 'Fast Fashion.'" *UNEP.org*, United Nations, 14 Mar. 2019, www.unep.org/news-and-stories/press-release/un-alliance-sustainable-fashion-addresses-damage-fast-fashion.

Garfinkel, Stanley. "GARMENT INDUSTRY." *Encyclopaedia of Cleveland History*, Case Western University & Kentucky State University, 2016, case.edu/ech/articles/g/garment-industry.

Martinko, Katherine. "Recycling Won't Fix the Fast Fashion Problem." *Treehugger*, 11 Oct. 2018, www.treehugger.com/recycling-wont-fix-fast-fashion-problem-4857478.



Dockrill, Peter. "China Has Shut down up to 40% of Its Factories in an Unprecedented Move to Curb Pollution." *Business Insider*, 24 Oct. 2017, 10:23, www.businessinsider.com/china-factories-shut-down-to-curb-pollution-2017-10.

Nace, Trevor. "China Shuts Down Tens Of Thousands Of Factories In Widespread Pollution Crackdown." *Forbes*, 24 Oct. 2017, 12:00pm, www.forbes.com/sites/trevornace/2017/10/24/china-shuts-down-tens-of-thousands-of-factories-in-widespread-pollution-crackdown/?sh=1e5e075e4666.

Chen, Te-Ping. "China Cracks Down on Water-Polluting Industries." *The Wall Street Journal*, 17 Apr. 2015, 6:50, www.wsj.com/articles/china-cracks-down-on-water-polluting-industries-1429267822.

Oxford Languages. "Oxford Languages and Google." *Oxford Languages*, 2010, languages.oup.com/google-dictionary-en/.

*All Definitions in this report are from the Oxford Languages online dictionary.

Admin. "Synthetic Dye's Impact on the Environment." *Trusted Clothes*, 23 June 2016, www.trustedclothes.com/blog/2016/06/23/impact-of-dyes/.

Lauren, Ashley. "Why Regulations Aren't Solving the Fashion Industry's Environmental Problem." *Age of Awareness*, 12 Nov. 2019, medium.com/age-of-awareness/why-regulations-arent-solving-the-fashion-industry-s-environmental-problem-9a50be4c2843.

Appendices

- I. The Jian river after the illegal dye dump in 2011



- II. United, Nations. "UN Digital Library." *UNEP Industry and Environment Office*, United Nations, 1972, <https://digitallibrary.un.org/search?f1=author&as=1&sf=title&so=a&rm=&m1=e&p1=UNEP.%20Industry%20and%20Environment%20Office&ln=en>

The UNEP section of the UN Digital Library holds passed resolutions in which the negative impacts of the garment and textile industry have formed subsections and have been debated upon.

