

Outline a current environmental, political, or social issue that requires redesign.

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The purpose of this essay is to investigate a current environmental issue that needs redesign, that environmental issue being plastic pollution. It is through the designer's awareness to this environmental problem that the redesign of this issue can take place. To help redesign the environmental issue in a sustainable way, the designer must be able to observe a far better solution to tackle the ever-growing problem.

The synthetic materials that we would recognise as modern plastics started to be developed around 100 years ago. Ironically, the invention of plastic was to 'provide a substitute for ivory' (Science History institute) as a way to save the wild elephants and other animals that were getting slaughtered for their horns, tortoiseshell or linen. Plastic was a new revolutionary man-made material that was thought to change all aspects of daily living, 'over 65 years annual production of plastics increased nearly 200-fold to 381 million tonnes in 2015' (Ritchie, H. and Roser, M). In most respects, it did change the world we live in with its versatile, lightweight, flexible and highly durable properties, it propelled us into a contemporary way of living. In hindsight, the biggest change that has come about because of plastic is the detrimental effect on the environment, as 'rapidly increasing production of disposable plastic products overwhelms the world's ability to deal with them' (Parker, L. 2019).

Predominantly, when thinking of plastic pollution, it is plastic bottles, straws and single-use bags that come to mind. While these items are still very much a problem, those are the items that the naked eye can see but worryingly, there is so much more that we can't see. The term "microplastic" normally refers to plastic particles that are < 5 mm in length (Thompson et al. 2004), and this secondary microplastics come from the breakdown of larger plastic items that have fragmented over time. Shockingly, it can be found almost everywhere, 'on mountains, in the ocean, in the Arctic sea ice, in our air, drinking water and bodies' (ClientEarth Communications 2020). This is a concern for many reasons, one being the toxic chemicals from the plastic, which leads to the worry of it being exposed into the environment and the wildlife. One commonly identified type of microplastic found in environmental samples is fibres, which are thought to originate from textiles.

It is sometimes overlooked that plastic is in clothing and other textiles, but in 2016, '65 million tons of plastic was produced for textile fibres, representing close to 20% of the total plastic production for that year' (Tobin, C. 2020), which makes plastic pollution a very big environmental issue that needs to be redesigned by the textiles industry.

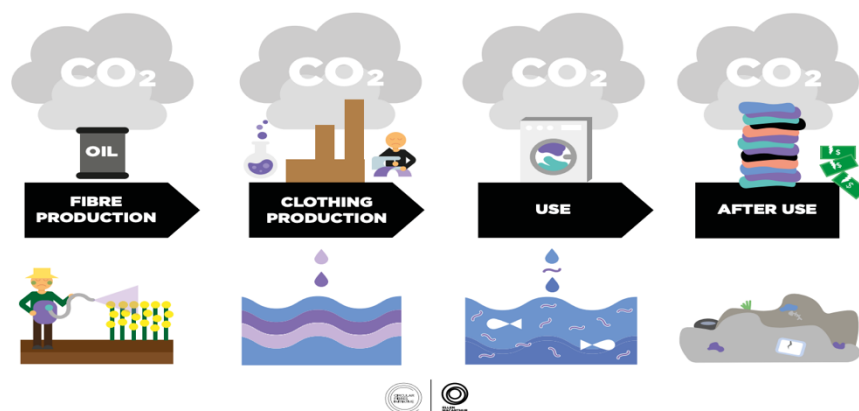


Figure 1 : MacArthur, E. (2017)

The textiles industry works in a very linear way as figure 1 shows. It uses finite resources to produce some fast fashion clothing that are then 'disposed of in under a year' (Bukolovska, J. 2018), which then means thin hair-like plastic fibres are coursing through the water and air that because of clothing made from synthetic fabrics like polyester, rayon, and nylon. This chain is unsustainable and damaging, every time the garment is washed, they 'shed millions of plastic microfibrs' which passes through washing machines and wastewater treatment plants into the sea, 'it is estimated that as much as 20% to 35% of all primary source microplastics in the marine environment were fibres from synthetic clothing'.

The fast fashion side of the textiles industry is a major factor of the negative impact caused to the environment. Fast fashion refers to 'low-cost clothing collections that mimic current luxury fashion trends' (Byrne, P. 2018), but due to the constantly changing trends the production of new clothes is lightning fast with no consideration of the wasteful and throw-away culture it leads to. It encourages 'over-consumption and excessive waste' (Henry, B. 2018), seeing as the products are rather cheap and aimed at trend driven consumers. As a consequence of the low-cost production, the quality of the garment is sacrificed which leads to a short lifespan. When looking at the causes of the shedding of microplastic from clothing it can be seen that it is as a result of the poor quality of the fabric. It is a high level of concern, which is why a way to combat this problem is for textiles industry to invest in higher quality garments, that will lead to shed less in the wash than low-quality products, 'fibre and fabric selection is key to improving sustainability' (Joy, A. 2015). It is also more durable thus, reducing the number of textiles being thrown away too.

Another concerning factor that cannot be overlooked is the large use of virgin plastic, new unprocessed plastic, in the textiles industry, '63% of the materials used for clothing in 2015 were virgin plastic compared to less than 3 percent being recycled material' (Tobin, C. 2020). The reduction of the use of virgin plastic would have a significant change on both the environment and the textiles industry itself. Well-known designers such as Stella McCartney have built their brand on the promise 'to do better, to continually ask [themselves] how [they] can improve', to take countability on the materials they use and the way in which they make their products. Which is why Stella McCartney, as well as other bands such as H&M and Adidas, have all started to incorporate recycled plastic from 'polyester, soda bottles, and fishing nets into their products' (Tobin, C. 2020), going as far as saying they will remove plastic from the supply chain entirely.



FIGURE 2. - Why buy recycled?

In figure 2, it shows the stages in which recycled plastic will go through to be made into fabric. The process of using recycled plastic is fairly straightforward, the plastic bottles are collected and sorted by type and colour, ideally to create a more efficient system there would be a team that would be collecting littered plastic from beaches or parks, this would add another level of sustainability. Once the plastic is collected and sorted it will then be sanitized and then ground down into chips. Next, it would be melted and spun into fine yarn which can then be used to make new products. It is important to note that not only is using recycled plastic helps reduce the plastic waste in the environment, it reduces the water waste and carbon emissions from fabric production.

More people are starting to recognise the urgency of the environmental issues and attempting to take action. It is important to take this time now to redesign change that needs to be implemented as quite soon the damage will be irreversible and it will be too late. In 2017, it was challenged by Textiles Exchange to large companies such as Adidas, H&M and Gap, to increase their use of recycled polyester by 25% by 2020. This push to open their eyes and take action did actually worked 'the organization issued a statement celebrating that signatories have not only met the goal two years before the deadline, they have actually exceeded it by upping their use of recycled polyester by 36 percent'(Elven, M. 2018). This also demonstrates the power in numbers because 12 more companies have joined the challenge. Organisations such as, WRAP are also revolutionising the clothing industry, using collective action to minimise the environmental impact of clothes by setting up action plan like SCAP, sustainable clothing action plan. Its aim is to have 15% reduction of waste to landfill, 13.4% reduction in carbon and 15% reduction water footprint.

A global movement known as Fashion Revolution is also taking a stand to help change the way in which the textiles industry works. Their approach is to educate people to the current concerns and allowing them to recognise that they have the power to make a change. Fashion Revolution strives to be action-oriented and solution focused, with their manifesto that calls for both industry and cultural change. They intend to get people together around to take collective action, to help understand the impact of their clothes and how they can influence the global fashion industry.

Sometimes it is forgotten that the consumer has a major role to play as they hold a significant amount of power to alter how companies work, '87% of Brits think consumers can influence how retailers and manufacturers do business'(Cole, P. 2019). Without the loyalty and satisfaction of the customer the business would not thrive, so it is in their best interest to listen to what the consumer wants. In a survey conducted by In Kind Direct in 2019, it shows that 'if consumers don't agree with a company's business ethics or social responsibilities' (Cole, P. 2019) they would likely shop elsewhere.

Social media is the fastest way to spread the message of redesign. It is a great platform to promote change and an easy way to influence the viewer. Consumer Expert, Kate Hardcastle, says that consumers are happy to spread the word about 'organisations that are mindful of the environment and their social responsibilities' (Cole, P. 2019). With social media being such a large platform, it is noticeable that more local small business are thriving, and it is important to note that these smaller business take environmental issues seriously, using non-plastic materials and recyclable packaging. It is noticeable that larger

companies often take for granted their customers, whereas smaller businesses put in a lot more effort. It is vital that bigger companies start taking note and changing their ways in respects to waste and plastic use because it is the larger business that creates the most waste.

In hopes to improve the way in which recycled plastic is collected, a new way should be adapted. For example, it is far more likely people will recycle much more if they have an incentive. People will feel more inclined to do something if there was to be a reward at the end of it, that is why it would be wise to use that as the driving force to help clean up the environment. If large companies set up machines in which the general public can dispose of their plastic, which in turn gave out some sort of reward, be it a discount code for their shop or some type of point system to build up and collect for a gift at the end, it would be a highly effective way of sourcing recycled plastic.

Another approach to the progressively increasing plastic waste would be to find a substitute material in its place. In hopes to completely stop the use of plastic, the solution would be to develop and create a new material, just as plastic was made, but this time in a more natural, greener way. It is crucial that this new material is biodegradable and can be taken back by the earth. Non-biodegradable waste is a substance that is not capable of being broken down, like plastic, and the accumulation of this waste is what is causing a huge environmental problem. For this problem, it is only logical to create a biomaterial. Biomaterials are made from organic materials that is a renewable resource and are able to break down naturally.

Biomaterials can be made from a range of different substances, anything from coconut fibres to eggshells to tapioca. The ingredients used to make these biomaterials are all natural and can be broken down back into the Earth and regrow. Thus, the problem of 'dumping waste materials that happen with synthetic plastic material can be avoided' (Sen, A. 2015). Materiom is a company that provides 'open-source recipes and data on materials made from abundant sources of natural ingredients, like agricultural waste'. It keeps its recipes free and accessible to everyone, because by making this knowledge open, it accelerates materials development and lowers barriers to entry in materials markets around the world. They work with companies, cities and communities to support the development of local biomaterial supply chains that nourish local ecologies and economies. What this allows, by having all their recipes open to all, is the possibility that anyone can create something new and possibly be able to help make a real change in the biomaterials area. It is possible for anyone and everyone to have a go seeing as the recipes are range from different difficulties and the ingredients required are everyday household waste. In a way, this also promotes zero waste behaviour, which can be empowering having the ability to somehow make an impact and to know that every effort is a small step in the right direction.

There are still areas that need to be reviewed, such as the question as to whether this biomaterial will react with dying processes that are used in the textiles industry or will new dyes need to be created as a result. It might be that instead of using strong harsh chemicals, for the biomaterial it would make sense to use a natural dye such as red cabbage or turmeric. The textiles industry has many problem areas, not only plastic pollution. The high use of chemicals in their dying and bleaching processes means that the water waste they

produce is highly toxic and dangerous to all living things. So, a more natural approach when dying fabric would be a positive change.

Having investigated the current environmental issues that needs redesign, it is apparent that there are two main areas of concern, microplastic and fast fashion. It is clearly that an immense amount of modification and change is needed if there is to be a noticeable change. It is vital that action against this worldwide threat is immediate because time is running out and pretty soon no amount of change will reverse the damage done. Although, there have been some great amount of effort directed at getting people to see the need to amend their shopping habits, it is clear that it is bigger companies and the textiles industry that need to act fast and redesign their way of production.

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Figure two : Why buy recycled? <https://www.sewdynamic.com/pages/why-buy-recycled>

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