FRAYING AT THE EDGE: THE ECOLOGICAL CONSEQUENCE OF WASTE DUE TO FAST FASHION

Sri Pragnya A, KIIT School of Law, Bhubaneshwar

ABSTRACT

In the era of fast fashion, the environment is bearing the brunt of the changing trends due to the fact that the fashion industry has been one of the major contributors to the pollution of the environment due to release of toxic, untreated chemicals in various water bodies, dumping substandard quality clothes in landfills which take a long time to decompose, release toxic fumes in air. These have increased since the boom of the fast fashion trend when leading brands such as Zara and H&M have rapidly increased the manufacturing of clothes, thereby reducing the quality of such garments by turning towards fabrics such as rayon, polyester and nylon which have a detrimental effect on the quality of the environment. There have been many measures taken by various countries to reduce pollution which is caused by the fashion industry and how to protect the environment for the future generations. Various legislations such as the RCRA by the United States of America, the Water (Prevention and Control of Pollution) Act, 1974 and the Environmental (Protection) Act 1986 in India have taken steps to regulate the toxic effluents from being discharges into various water bodies. This paper focuses on the impact of waste produced due to fast fashion harmful to the environment and particularly how does the toxic waste produced by the fast fashion impact the water and how the legislations enforced deal with this challenge.

INTRODUCTION

Fast fashion is a method of design, manufacturing which is primarily focused on the rapid production of high volumes of clothing. This phenomenon of garment production increases the visibility of trends with low quality fabrics, mainly synthetic fabrics such as rayon, nylon and polyester in order to meet the high requirements of the consumers for the clothes that are trending. Often than not, these cheaply made trendy clothes have huge impact on the consumption of resources, in most cases leading to over consumption. The production of garments in this fast fashion world has also had huge impact on the animals, workers and last but not the least the wallets of the customers who purchase such goods[1].

The history of garment manufacturing has seen a lot of development from the early industrial revolution to the fast fashion world that we live in. In the early 19th century, clothes were manufactured within their homes in the pre-industrial period. However due to this method, there was a misconception that clothes were sown by the women of the house. This wasn't the case as skilled dressmakers, tailors who were highly skilled and guarded their craft which was passed down to their assistants. In the mid 19th century, sewing techniques became public but women had basic sewing skills and they often were focused on making undergarments and repairing clothes.

The change in the fashion trends up until the mid 20th century were based on the four seasons of the year : fall, winter, spring and summer. For these the designers would spend months working hard to plan out each season and make predictions about the styles that the customers would appreciate and want for that particular season. However, this method which was methodological than the fast fashion trends followed today has taken away agency from the wearers. Britain, in the late 19th century saw a drop in the piece rate for clothes as companies undercut their competitors and to appeal to their buyers[2].

However in the 1960s where a well timed marketing campaign for paper clothes proved to the consumers that they were all set for the wave of fast fashion, which resulted in the rapid increase in the pace of the fashion industries hence, lowering its costs of production. With the passage of time, however it was noted that the trend of fast fashion reached a point of no

[1]Audrey Stanton (2024, February 2) What is Fast Fashion Anyway?, https://www.thegoodtrade.com/features/what-is-fast-fashion/
[2]Fast fashion: Then and now. (2023, January 16). *The MERL*. https://merl.reading.ac.uk/explore/online-exhibitions/fast-fashion-then-and-now/#modern_fast_fashion

return. In the 1990s it was retailers such as Zara and H&M which began to being about changes in the fashion world by the production of clothes from the design table to retail which proved to be extremely profitable.

As of 2013, it was noted that various fashion houses produces as many as "52 micro seasons". this was due to the constant inflow in affordable and new styles in the market. This so called fast fashion market ballooned into an approximate $36.4 billion by 2018 and could be compared to an addiction.

Considering the statistics at present, its is estimated that around 150 billion garments are manufactured every year, despite having a world population of 7.5 billion. Zara alone produces around a whopping 65,000 designs per year as compared to an average clothing company which produces upto 5000 designs[3].

Due to the rise of fast fashion, the fashion industry has been seen to be one of the highest sectors to have been causing damage to the environment. According to various sources, it has been stated that the industry has been responsible for more than 10% of the global carbon industries annually which is 5 times greater than the aerospace industry which has always been called out for its high level of damage to the environment[4].

According to 'A New Textiles Economy' published by the Ellen Macarthur Foundation in 2017, that the textile industry amounted to total of emitting of 1.2 billion tons of greenhouse gas emissions. This trend can be observed not just only to the rising trend of fast fashion but also the increase in the use of online platforms by consumers which triggers consumption thus contributing to the increase in the global carbon emissions.

The impact of the textile industry on the environment is huge. To manufacture a single garment, hectares of land is cultivated to grow cotton and other natural fibers. In order to produce a single cotton T-shirt, it takes around 2700 litres of fresh water, which is one person's drinking water needs for 2.5 years. Due to the fast fashion trend, often or not many garments have a shorter lifespan and end up in landfills instead of being repurposed or donated, which leads to greater waste being accumulated in the landfills. The materials of

[3] The rise of fast fashion: A timeline of transformation and its implications for a sustainable future. (2023, August 22). *Cloth & Co*. https://clothandco.co/en-fr/blogs/our-stories/the-rise-of-fast-fashion-a-timeline-of-transformation-and-its-implications-for-a-sustainable-future

[4] Claudio, L. (2007). Waste couture: Environmental impact of the clothing industry. *Environmental Health Perspectives*, *115*(9). https://doi.org/10.1289/ehp.115-a449

these garments are often not natural fabrics such as cotton, silk and jute but are synthetically manufactured polyester, rayon and nylon which are tough to degrade and take a very long time to degrade. The impact of textile waste on the ecosystem is massive as it not only impacts land but also water, air, soil and the livelihood of the various people working in such industries[5].

As seen in the above cases, most of the world's textile industries are located in developing nations which leads to countries such as India to have lack of proper waste management leading to environmental degradation. Environmental problems related to the textile industry are often associated with water pollution caused by the discharge of toxic chemicals and untreated effluents into water bodies causing decrease in the oxygen that is present in the water, hence causing imbalance in the marine lifestyle.

High concentrations of textile days in water bodies stop the reoxygenation capacity of the receiving water and cut-off sunlight, thereby upsetting biological activity in aquatic life and also the photosynthesis process of aquatic plants or alge. The polliting effects of dyes against aquatic environment can also be result of toxic effects due to their long time presence in environment, accumulation in sediments especially in fishes or other aquatic life forms, decomposition of pollutants in carcinogenic or mutagenic compounds and also low acrobic biodegradability[6].

BODY

With the increase in the consumption of fast fashion, there has been a surge in the waste generation and accelerating the environmental degradation. According to various experts, only about 1/5th of the clothing donated to charities is used or sold in the thrift stores. Whereas countries such as US, UK, France, and other first world countries get away with the various changing fashion trends, but on the other hand the third world countries such as Bangladesh, Vietnam, Cambodia from where the various worldwide fashion houses get the garments suffer from an unprecedented amount of textile wastes produced from the manufacturing process of various garments. The ready-made garment industry is one of the

[5] *The impact of textile production and waste on the environment (infographics)*. (2023, November 15). https://www.europarl.europa.eu/topics/en/article/20201208STO93327/the-impact-of-textile-production-and-waste-on-the-environment-infographics

[6] Gita, S., Hussan, A., & Choudhury, T. G. (2017). Impact of textile dyes waste on aquatic environments and its treatment. *Environ. Ecol*, *35*(3C), 2349-2353.

largest source of formal employment and aids in reducing poverty. But despite being the largest job provider in the country, labour safety and standards are an important issue that plagues the ready-made garment industry of Bangladesh. The environmental impact of the textile industry has been seen in the capital city of Dhaka where the water pollution has reached an all time high , with the government declaring three rivers as "biologically dead" due to the untreated waste released by the various industries surrounding the rivers. Various rivers in the delta country have been considered as highly contaminated with less to no amounts of dissolved oxygen. Pollution due to industrial activities has contributed 60% to the pollution to the Dhaka watershed and the garment industry is the second largest contributor to the pollution.

The history of garment making factories in Indonesia has been since the 1970s and it has only grown since then. The garment making industry has been valued at an approximate value of $14 billion USD. However this rapid growth in the number of garment factories has led to high amounts of water pollution due to the high amounts of harmful pollutants released by the industries in the water bodies. The Citarium River Basin in West Java where 60% of the clothing manufacturing factories are present has been labeled as one of the world's most polluted. Indonesia has been ranked the 2nd highest level of water pollution caused as a result of the textile industry. Various wastewater treating plants have been set up by the river to treat the river and alleviate the pollution caused by the industries and improve the water quality but have failed to do so.

Vietnam's economy is majorly dependant on the garment industry and is one of the major sectors in the economy. Exports from Vietnam in textile, footwear and clothing has doubled over the last 5 years making it the 5th largest exporter of textiles and clothing in terms of the GDP. Since 2011, the textile exports in Vietnam has increased by 32%, which is the highest by any country. Vietnam primarily focuses on sew-cut-trim or garment assembly activities which means a low-skill employment and low value -add production. There have been several investments on upstream, midstream activities, which are speeding the environmental risks to the over-used and sensitive water resources of Vietnam. Water pollution is a very important issue in Vietnam and the government is putting all efforts to control that same. The Red River Delta surrounding Hanoi, which amounts for 25% of the country's output, has only 30% of its industrial waste water treated. It has also been estimated by experts that air and water pollution has led to the economic loss of 12% of the GDP off Vietnam, even with a plan

of environment protection and sustainable development. It has been estimated that 60% of the industrial waste waters has been released into the water bodies is untreated and as much as 75% of industrial estates do not have any wastewater treatment system in their premises[7].

From these examples it can be seen that there is an immense environmental impact which has been observed to affect the developing countries whose major part of the employment is provided by the ready-made garment industry. But it comes at the cost of the environmental degradation of such countries. Countries such as US, EU, Japan consume 58.1% of the world's garments, whereas countries such as Vietnam, China, Bangladesh exported around 43.8% of the world apparel in 2019. This shows an unhealthy demand and supply of garments to meet the demands of the world leading to severe environmental degradation in such countries as the process of manufacturing and the dumping of garments into landfills[8].

Recognizing the need for protection of the environment, the member nations of United Nations came together and drafted the Fashion Industry Charter for Climate Action which was set up with the support of UN Climate Change in 2018 to provide a pathway for the industry to achieve net-zero emissions by 2050. the charter recognized the Paris Agreement which was formed with the intention in enhancing the implementation of the United Nations Framework Convention on Climate Change (UNFCC) with a common aim to stop the increase in the average global temperature under 2 degrees Celsius before pre-industrial levels and above pre-industrial levels and making efforts to limit the increase of global temperature to 1.5 degree Celsius above pre-industrial levels.

As known by all the goals set by the Paris Agreement aim primarily at reaching climate neutrality in the second half of the 21st century. With the fashion industry being one of the major player, there has to be an active effort form the fashion industry to help in fulfilling the goals set under the Paris Agreement. In order to achieve this, the stakeholders in the fashion industry have a huge role to play in reducing the emissions resulting from the manufacturing process and all companies within fashion, retain and textile global value chain, regardless of their have to take actions which will culminate in the reduction in the greenhouse gas

[7] Effective regulations? Environmental impact assessment in the textile and garment sector in Bangladesh, Cambodia, Indonesia and Viet Nam. https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/documents/publication/wcms_802429.pdf

[8] Patwary, S. (2020). Clothing and textile sustainability. *Textile & leather review*, *3*(3), 158-173. https://doi.org/10.31881/tlr.2020.16

emission. The signatories of the the Fashion Industry Charter of Climate Action have committed to:

1. Support the goals of Paris Agreement in limiting global temperatures to below 2 degrees Celsius above pre-industrial levels;

2. Commit to 30% aggregate greenhouse gas emission reduction in scope 1,2,3 of the Greenhouse Gas Protocol Corporate Standard, by 2030

3. Commit to to analyzing and setting a decarbonization pathway for the fashion industry drawing on methodologies from the Science- Based Targets Initiative

4. Commit to prioritizing materials with low-climate impact without negatively affecting other sustainability aspects

5. With other stakeholders, to develop a strategy including targets and plans to advocate for the development of policies and laws to empower climate action in the fashion industry, specifically in supply chains.

6. To establish dialogues with various governments to enable renewable energy, energy efficiency and the necessary infrastructure for a change beyond the fashion industry[9].

Along with this at the International level many countries have come up with various rules and regulations to tackle the environmental degradation caused by the fashion industry. The Unites States of America brought a federal law known as the Resource Conservation and Recovery Act (RCRA). under the act, textile manufacturers regulated under the Environmental Protection Agency (EPA). RCRA replaced the Solid Waste Disposal Act of 1965 to address the increasing problems related to the large volume of municipal and industrial waste. The act sets national standards for protecting human health and natural environment from the potential hazards of waste disposal; conserving energy and natural resources; reducing the amount of waste generated through reduction and recycling and ensuring the management of waste in a manner that is not detrimental to the environment.

[9] *Fashion Industry Charter for Climate Action*. UNFCCC. https://unfccc.int/sites/default/files/resource/Industry%20Charter%20%20Fashion%20and%20Climate%20Action%20-%2022102018.pdf

The act lists various waste codes to the hazardous materials used in the manufacturing process of textiles. For instance Hydrogen peroxide has been labeled D002 which is a bleaching agent which in excessive quantity can harm the environment. Another waste that is generated during the process of mercerizing is D002 which is alkali and sodium hydroxide. These components are just the tip of the iceberg, there are many such components that have been labeled as hazardous waste and releasing them in excessive quantities without treating them using the appropriate process can bring about a penalty over such individual/company.

Other than the RCRA there are various legislations in the United States which affect the textile manufacturing industry such as the Clean Water Act, Clean Air Act, Toxic Substances Control Act and Safe Drinking Water act aids in regulating the various effluents released by the fashion industry. These legislations aid in the alleviation of the environmental damage which would be caused by the manufacturing of garments[10].

There are various legislations in India which deal with regulating pollution due to pollution caused by the fashion industry. Article 21 of the Constitution of India, guarantees the right to life and personal liberty. The enforcement of these constitutional rights in India is exercised with the help of Water (Prevention and Control of Pollution) Act, 1974 and the Environmental (Protection) Act, 1986. These legislations state that industries in order to establish and commence their manufacturing operations are required to obtain a 'consent to establish their manufacturing units. The grant of such licenses depend on the guarantee provided by the industries that they would release their by products after the manufacturing process after treating it according to the norms set by the authorities and will not release untreated, toxic discharge into water bodies or air[11].

The Water (Prevention and Control of Pollution) Act, 1974, has various provisions related to providing measures for preventing water bodies from being polluted due to various effluents released by the industries. Section 2(e) of the Act defines pollution as "pollution means any contamination of water or alteration of the physical, chemical and biological properties of water or disposing of any sewage waste in water which is likely to cause nuisance or renders

[10] *RCRA In Focus*. (n.d.). Environmental Protection Agency. https://www.epa.gov/sites/default/files/2015-01/documents/k02028.pdf

[11] Sustainable Fashion and Water Pollution: A Constitutional Analysis of Enforcing the Use of Natural Materials for Dying in the Fashion Industry. (n.d.). *OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada*.

such water to be harmful to public health or safety or to domestic, industrial or other legitimate use or harmful to the life and health of the animals and aquatic plants."[12]

Section 19 of the Act gives power to the state board to limit the territorial jurisdiction of any order passed by it in matters relating to prevention and controlling water pollution. The orders passed by the state board will only apply in the areas that are affected by water pollution. It is on the discretion of the state board to determine which area is to be declared water polluted and which is not[13].

Section 20 of the Act gives powers to the state board to inspect any, conduct surveys or gauge in an area if it thinks fit for controlling or preventing water pollution. It can also ask any company, industry to dispose of the information pertaining to the construction, installation, and operation of its establishment[14]. Section 21 of the Act empowers the state board or any employee on its behalf to analyze any stream or well for the purpose of preventing and controlling water purpose[15].

According to Section 25, in order to establish an industry a manufacturer has to take the authority of the state authority and only after such approval is granted, the individual can establish his/her business[16]. The Act also provides for various penalites If any person fails to comply with the orders of the board under subsection 2 and 3 of Section 20 then in that case on conviction he is punishable for imprisonment for 3 months or fine or both.

1. If the person fails to comply with orders of the board under clause e of subsection 1 of Section 32 or with subsection 2 of Section 33 then, in that case, the person would be punishable with imprisonment for 6 months extending to 6 years or a fine or both[17].

2. Apart from the above-mentioned penalties. Section 42 mentions penalties for different kinds of Acts namely:

3. If any person removes, destroys or pull down any notice put up by the board.

[12] Section 2(e), Water (Prevention and Control of Pollution) Act, 1974
[13] Section 19, Water (Prevention and Control of Pollution) Act, 1974
[14] Section 20, Water (Prevention and Control of Pollution) Act, 1974
[15] Section 21, Water (Prevention and Control of Pollution) Act, 1974
[16] Section 25, Water (Prevention and Control of Pollution) Act, 1974
[17] Section 32,Water (Prevention and Control of Pollution) Act, 1974

4. If someone obstructs the member of the board or any other person who is Acting under the board.

5. If a person fails to produce any information as required by the member of the board for the performance of his duties[18].

Or if he gives any information to the members which he knows to be false.Then In all the above Acts if the person is convicted he would be punishable by imprisonment for a maximum period of 3 months or fine that may extend up to 10,000 rupees or both.

In addition to the rights provided under Part III of the Constitution, Part IV of the Constitution i.e Directive Principles of State Policy, provide a guide to the state towards an ideal set of policies. These principles set forth a duty upon the state to protect natural resources for the generations to come. In order to encourage sustainability, it would be expected by the states to to take steps to prevent the use and release of harmful, untreated waste being disposed by fashion manufacturing units. These however have failed due to the fact that the DPSPs are not enforceable in the court of law and are just merely principles which guide the policies made by the governments for a better environment.

India by way of Article 253 has taken has drafted the Indian Hazardous Waste Management Rules Act,1989, by taking inspiration from the Basel Convention on Trans-Boundary Movement of Hazardous Waste. The Basel convention created an obligation on India, which is a signatory to ensure trans-boundary movement of hazardous waste is kept at a minimum.

Waste Category No.8 talks about "waste from dyes and dye immediate containing organic chemical compounds" and the regulated quantity for such materials is 200 kgs. In consideration to this, it was also submitted that with the fashion industry which would increase by 15-20% in the next 5 years, the limit of 200 kgs would be detrimental to the environmental when the expected growth of the dye market is measured at $480 million

Section 4 and 5 of the Act talk about the responsibility of the manufacturer to ensure that the waste is treated before being released and the powers of the authority in this matter to cancel the license. Since there has been no fine that has been mentioned in the act, the authorities must be vested with specific authorities to impose exemplary fines in cases of violation of the

[18] Section 42, Water (Prevention and Control of Pollution) Act, 1974

provisions of this Act. The above mentioned statute and any other treaty or convention that India may have acted upon have been overridden by UN Resolution 70/1 of 2015 to which India is a party favorably. As a successor to the Planning Commission, the NITI Ayog was set up as a means to foster plans to implement the Sustainable Development Goals. These goals have a direct relation to the discharge of hazardous wastes by the fashion industry:

Goal 3: Ensure healthy lives and promote well being for all at all ages;

Goal 6: Ensure availability and sustainable management of water and sanitation for all;

Goal 9: Build resilient availability and sustainable management of water and sanitation for all;

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy;

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Out if the 17 goals which India set for itself along with the rest of the community, 7 of them are directly related to the prevention of the detrimental consequences that chemical dyes which have a negative effect on the environment. While the goals do not aid substantially in accomplishing the task at hand, but they should act as an inspiration and further puts focus on the proposal ban on the use of chemical dyes by units in India[19].

CONCLUSION

From the above points we have seen that the fashion sector is indeed one of the largest

[19] Sustainable Fashion and Water Pollution: A Constitutional Analysis of Enforcing the Use of Natural Materials for Dying in the Fashion Industry. (n.d.). *OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada*.

pollutant in the world. As also seen in the manufacturing process that producing one t shirt can take up gallons of water and the textile dyes being discharged into water bodies, this reducing the presence of various algae and oxygen in the water bodies. Since the world is now knowing about the harms that fast fashion cause to the world, people have shifted towards sustainable clothing which refers to buying less amount of clothes or reusing existing pieces of clothing as Indians like to call it 'cleaning cloths'. as we all know Indians are the best when it comes to sustainable clothing, we have always used our clothes as cleaning cloths or hand me downs to siblings. Recently the trend of sustainable fashion and repeating outfits has been popularized by celebrities who have re worn their outfits, thereby influencing the public to do so too. People who practice sustainable clothing buy less clothes but which are of higher quality fabrics so they they last longer without causing any harm to the environment. The laws passed by USA and India have initiated the reforms for prevention of textile dyes in water bodies. But these laws have proves to have very less sanctions imposed on defaulters and even if imposed, the defaulters pay the requisite amount and get away with such acts of damaging the environment. But it is not only the responsibility of the government to protect the environment from such perils, rather it is also the citizen's responsibility to protect the environment and prevent more waste being generated by the fashion industry by shifting to a more sustainable option by buying less clothes and re wearing clothes on a regular basis.

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13. Section 25, Water (Prevention and Control of Pollution) Act, 1974

14. Section 32,Water (Prevention and Control of Pollution) Act, 1974

15. Section 42, Water (Prevention and Control of Pollution) Act, 1974

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