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Environmental Impact of Clothing Manufacturing and the Fashion Industry

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Abstract

Clothing manufacturing and the fashion industry have a negative environmental impact on the planet. Consumption of natural resources: Manufacturing clothing requires the use of large amounts of natural resources such as water, energy, and raw materials, and thus contributes to the depletion of those resources. Pollution: Many chemicals are used in the clothing industry, such as bleach, dyes, and pigments, and these materials accumulate in water, soil, and air, affecting the environment and public health. Waste: Large quantities of waste are generated from the clothing and fashion industry, and include plastic, paper, metal, and textile waste, which results in environmental pollution. Transportation: Transporting clothes and fashions to their places of sale requires the use of large means of transportation such as trucks, ships and planes, which cause air, soil and water pollution. Energy consumption: Operating clothing manufacturing factories requires the use of large amounts of energy, thus increasing greenhouse gas emissions and affecting climate change.

Keywords: Global warming; Chemicals; Water; Energy; Microfiber; Waste.

Introduction

The clothing industry has a huge impact on the environment. From the production of raw materials, such as cotton, to the manufacture and disposal of clothing, the industry contributes to pollution, deforestation and resource depletion. The use of pesticides and fertilizers in cotton production can lead to soil and water pollution; while dyeing and manufacturing processes can release toxic chemicals into the environment. [1-3]

In addition, the fast fashion trend, characterized by cheap, disposable clothing, encourages overproduction and contributes to waste, as clothing is often thrown away after a few uses, leading to increased waste and pollution in landfills. [4-6]

Environmental experts have confirmed that the clothing industry in the world is one of the industries that causes various types of environmental harm, and wastes natural safely disposed of resources of water and electricity, in addition to the resulting waste that is recycled. [7-9]

A polluting and resource-draining industry

The huge quantities of clothing produced in the world cause great damage to the planet and the living organisms that live on it, especially since this industry is considered among the most depleting of natural resources and the most polluting of the environment, in addition to the burden that consumed clothing causes on the environment due to the low rate of recycling. The global textile and clothing industry depletes a lot of natural resources. It consumes, for example, 93 billion cubic meters of clean water every year. To meet its need for fabric, 70 million tons of trees are cut down every year. This number is expected to double by 2034, further destroying the world's forests. [5, 10, 11]

Fabric dyeing, which uses toxic chemicals, is responsible for 17% to 20% of sewage pollution. 72 toxic chemicals have been found in water used for dyeing textiles.

About 65% of all clothing also contains polyester, a type of plastic made from fossil fuels, the

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production of which consumes approximately 70 million barrels of oil every year. Some sources estimate that the clothing industry contributes to global warming by being responsible for 10% of human-caused greenhouse gas emissions.; It takes between 7,000 and 10,000 liters of water to make just one pair of jeans, from the production of the cotton to the delivery of the final product to the store. Clothes made from jeans are considered one of the most harmful fabrics to the environment, because a large portion of polyester derived from plastic is used in their manufacture, which is why they are difficult to dispose of. Also, dyes are used, which consume a large amount of water and affect drinking water. [12]

White gold

Cotton is the main component of textile fibers and is at the forefront of global consumption for the textile industry, as the global crop produced from this natural material goes to supply fashion and textile factories. Its manufacture goes through five stages: planting, harvesting, spinning, and weaving, all the way to the stage of presenting the final product. Trade has made this raw material described as white gold, as the cotton industry occupies more than 2% of the global cultivated area, and the amount of its production in 2021 reached about 25 million tons. On the other hand, international reports have estimated that the fashion industry produces about 10% of the global total of greenhouse gas emissions, because the entire production process consumes energy estimated to exceed the needs of the aviation and maritime transport sectors combined. [13-18]

Environmental cost

Developing countries bear the environmental cost of this industry, as its factories are concentrated in Asian and African countries, including Arab countries, especially Egypt, in addition to the spread of international ready-made fashion factories in poor and developing countries where cheap labor is available, in addition to the environmental cost in terms of gas emissions and large water consumption.

Figure 1

Investing in the fashion industry to reduce unemployment in these countries has become environmentally burdensome and threatens the depletion of their natural resources, at a time when major countries are bearing its material and environmental costs. [19, 20]

Production doubled

In this context, environmental and marine sciences engineer Hamdi Hashad points out that the clothing industry consumes very large amounts of water and natural resources.

He points out that some studies indicate that producing one pair of jeans requires a thousand liters of water.

Hashad also mentioned in an interview with Al-Arabi from Tunisia that clothing production has doubled since 2000. He says: "The clothing industry is considered one of the most polluting industries on Earth after oil. This industry consumes 94 billion cubic meters of water and about 70 million barrels of oil."

Environmental repercussions

It is reported that 75% of the fibers used in the clothing industry are carbon fibers that come from petroleum. They are chemical, not natural, and disintegrate in nature with difficulty. [21, 22]

Figure 2

Figure 3

Conclusion

Used clothing offers a solution to the problem of overconsumption. It is also recommended to limit the washing of clothes, to reduce carbon emissions resulting from clothes, limit water consumption and reduce the number of microfibers that leak into water systems.

If you feel that you no longer need some clothes, it is better to give them to your friends or send them to charitable organizations, but do not try to free up space in your wardrobe to buy new clothes. If your clothes are so worn that they are beyond repair, the best way to get rid of them is to recycle them. Some factories are now recycling cotton and polyester fabrics and turning them into new clothes or fabrics. Major fashion houses are now buying recycled fabrics to use in manufacturing their fashions.

Reducing the environmental impact of fashion may require making many changes at the level of companies, manufacturers, and consumers. The conscious decisions we make as consumers may contribute to preserving the environment, not only that, but also to changing the fashion sector as a whole

Conflict of Interest

There is no conflict of interest in the publication of this article

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