The Problem: Fast Fashion and Environmental Issues

The fast fashion business model in the global fashion industry replicates latest high-fashion designs at an affordable cost for the mass. The production process is very fast from manufacturing to retail to grab and monetize the demand following a fashion trend. However, the mass production is never fully consumed and the trends gets overlapped. So, the remaining stocks are discarded as the demand fades out.

As monetary gain is the primary objective of the fast fashion industry, so, they are not much interested in working conditions of the labourers, and their health. As a result, labourers from third-world countries work in poor conditions, and often their health conditions are neglected. It violates their basic human rights. Sometimes, child labour cases are also there.

From Linear to Circular: Sustainable Fashion

To overcome the negative impacts from fast fashion, it needs to 'slow down'. There is another trend in the fashion industry, as called "slow fashion". It is focused on redirecting the fast fashion trends towards sustainable and environment friendly, conscious, and ethical practices. The fast fashion industry process is linear in nature. For example, the raw materials from the environment are taken to product affordable clothes, then consumers use that and discard as waste. On the other hand, sustainable fashion is about a cyclic process using upcycle and recycle concepts. For example, in this case, recycling is possible between manufacturer and consumers as much as possible to reduce waste. And the circular economy focused process makes it possible to add repair-reuse-recycle between manufacturing and consumer to lead to minimal or no waste. Hence, it becomes a closed loop and clean process.

Technologies

• Supply Chain Decision Making: AI and RFID

First, it needs to track and monitor the whole supply chain to make conscious decisions on where to use the concepts of reduce-recycle-reuse. Artificial Intelligence, and RFID are two of the widely used technologies in supply chain management. It helps in tracking movement of products from raw materials, production, finished product, consumed product and discarded product.

Aim is to Achieve Fast, Sustainable and Affordable Fashion.

Carrico, M. (2022) Integrating Sustainability in a Garment Construction Course, *International Textile and Apparel Association Annual Conference Proceedings*. Iowa State University Digital Press.

Joy, A., Sherry Jr, J. F., Venkatesh, A., Wang, J. & Chan, R. (2012) Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion theory*, 16(3),pp. 273-295.

McNeill, L. & Moore, R. (2015) Sustainable fashion consumption and the fast fashion conundrum: fashionable consumers and attitudes to sustainability in clothing choice. *International Journal of Consumer Studies*, 39(3),pp. 212-222.
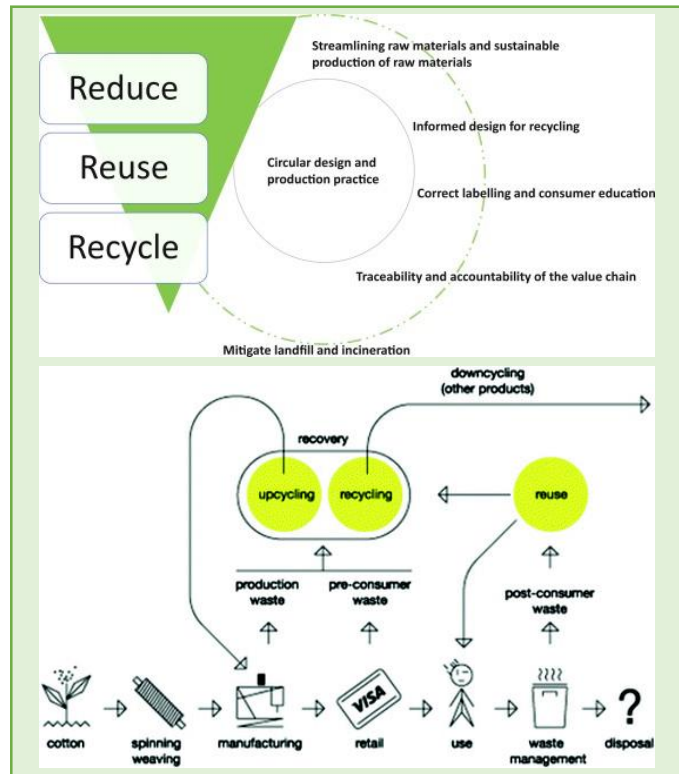
Muthu, S. S. & Rathinamoorthy, R. (2021) Sustainability and Fashion, *Bacterial Cellulose*Springer, 1-17.

Peters, G., Li, M. & Lenzen, M. (2021) The need to decelerate fast fashion in a hot climate-A global sustainability perspective on the garment industry. *Journal of Cleaner Production*, 295,pp. 126390.

• Alternative Textile: Recycling

Researchers are working to find out alternatives of natural fabrics, and polyester fabrics. Natural fabrics results into negative impacts on bio-diversity. On the other hand, cheaper polyester based man made fabrics cause pollution and negative impacts on the environment. It results into low water consumption, lesser use of chemicals, and sometimes a closed loop production. It does not harm any animal, and ethical.

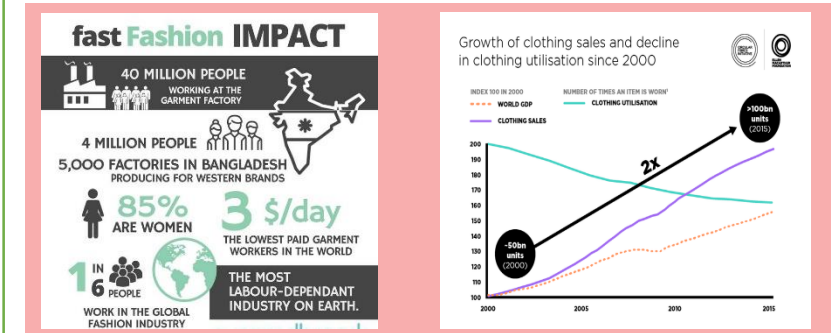# Fast Fashion and Sustainability: Recycling Technologies

• Innovative Technologies in Production

Designing causes a high volume of waste materials. Hence, digital 3D samples are being used as an alternative to the traditional process of producing samples in bulk. It is easier to make changes in the digital 3D samples. To track every state in the life-time of a garment, and to ensure transparency in a complex and large supply chain like garment production, Blockchain technology can be useful. It is hard to tamper data and, any stakeholder can access relevant data from any point of the supply chain process. Thus, it will be easier to track demand, and to produce only the right volume, and to track the waste or discarded stocks. AI and predictive analytics can help in making intelligent decisions and providing insights about the production process to reduce over-production.

• Recycling Technologies

Recycling technologies help in either to reduce waste, or in creating closed loop production process. Textile recycling is a chemical process or turning waste into raw materials for the textile industry or other. Or, keep recycling waste materials as long as possible by using upcycling. Infinited fiber technology helps in turning waste materials collected from different sources into fibre. And the fibre is reused in the textile manufacturing process. The key steps are, fibre separation from waste materials or by-products of waste materials, turning it into liquid using thermal, and chemical processes, and manufacturing new fibre.

Conclusion

The mechanical processes of recycling are not suitable for most of the polyester based fabrics, like viscose. Hence, chemical process is needed. On the other hand, traditional chemical process does not help much in reducing waste and pollution. Fast fashion has caused a steep increase in garment production causing increasing pre-consumer, and post-consumer textile waste. Technology can help in the transition from the fast fashion to sustainable fashion practices in the global fashion industry. At different stages in the whole production, and waste management process, different technologies can be added to implement the concept of reduce-recycle-reuse.