

Circular Economy for Textiles as Engrained in the Traditional Indian Life

Anupriya Aggarwal

Department of nanotechnology, Indian Institute of Technology, Bombay, India

Review Article

Received: 12/02/2021

Accepted: 19/02/2021

Published: 05/03/2021

*For Correspondence:

Anupriya Aggarwal

Research Scholar, Indian Institute of Technology, Bombay, India

E-mail:

anupriya.aggarwal@gmail.com

Keywords: Traditional; Reuse; Textiles; Economy; Domestic product; Expenditure

ABSTRACT

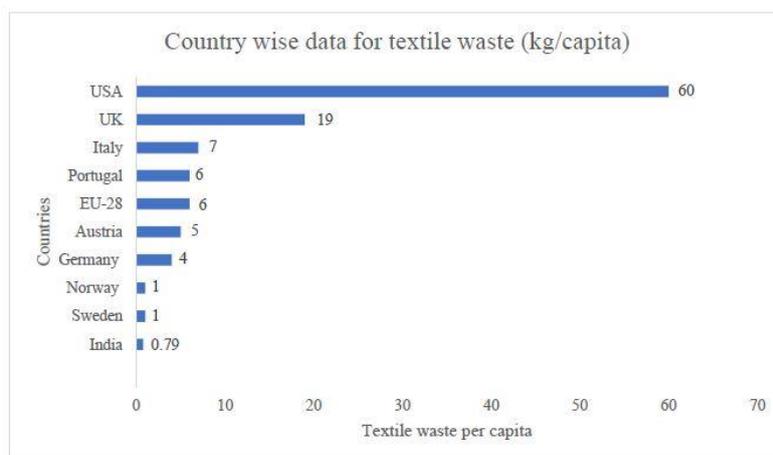
When compared to the per capita textile waste in other countries, the waste generated by the Indian population is significantly low (0.79kg per capita). There are various factors which lead to low textile waste such as the traditional practices of reuse, the design of clothing, lower disposable income and so on. However, the largest eliminators of the textile waste are principles of reuse engrained in the traditional Indian practices and lifestyle like the reuse of the garment by multiple members of the family enabled by (usually a) patrilinear cohabitation known as the Joint family system; and the basic tenets of circularity imbibed in the practice of wearing rectangular pieces of unstitched fabrics like sarees, lungis, veshtis. In this paper we will do a detailed study of how these two traditions encourage a circular economy for textiles.

INTRODUCTION

The textile sector is approximately 5 per cent of India's Gross Domestic Product (GDP). Thus, the annual consumer expenditure on clothing and footwear is almost 68 billion dollars ^[1], Recycling of Post-Consumer Apparel Waste in India: Channels for Textile). According to the Indian Textile Journal, it is estimated that more than 1 million tons of textiles are thrown away every year, with most of this coming from household sources ^[2]. This amounts to 0.79 kg of textile waste per capita. Let us compare this with the textile waste of some other countries. Americans discarded

18.76 million tons of textile waste in the year 2011 (MSW Generation, Recycling and disposal in the United States), which amounts to approximately 60.2kg per capita. United Kingdom, Italy, Portugal, EU-28, Austria, Germany, Norway, Sweden dispose of 19, 7,6,5,4,1,1 kg of textile waste per capita as shown in the graph below.

Figure 1: The per capita textile waste for different countries shows that India has significantly low amount of textile waste per capita i.e. 0.79 kg per person. Data Sources: [3], (MSW Generation, Recycling and disposal in the United States), [2,4].



However, in comparison the per capita textile waste of India is only 0.79 kg. There are many factors which play role in such small proportion of textiles in the Indian Solid Waste. Some of these factors are also rooted in the traditional practices engrained in the Indian lifestyle.

As the world today is becoming increasingly aware of the environmental impacts of textile waste, efforts are being made to reduce the amount of textile waste produced. It would be helpful here to analyze the various aspects and reasons behind the low per capita textile waste produced in India to see if some of these practices are replicable.

THEORY

A flat piece of rectangular fabric

Considering that for most materials, production and manufacturing stages are the most carbon intensive, water intensive and the most polluting; we must try to design our fabrics in a way so as to give it a long life. Such design for longevity will help us move away from 'fast fashion' and move towards a circular economy for textiles. India has a long tradition of wearing unstitched rectangular pieces of clothes. This is in fact a way to design a no waste garment, a flat piece of single yarn fabric as the fabric cutting waste during design stage is completely eliminated. Both men and women, tend to wear these single rectangular pieces of fabric in the form of sarees, dhotis, lungis, veshtis and so on. Since, this type of clothing is embedded in the social and cultural ideology, it offers a timeless look and does not fall prey to 'fast fashion'.

1. It can be worn by many people since there is no size, both within the same generation as well as across generations. Thus, the same garment (like a saree) moves across multiple generations in the hands of several people.

2. It can be worn in 108 different styles ^[5] and hence provides versatility depending upon the local, geographical and climatic factors. Versatility helps in achieving different styles using the same piece of cloth. It also helps in dressing up according to the climatic conditions by giving various options in draping styles. Women in warmer and more humid regions of India like Maharashtra and Goa, drape it in a way that legs below the knee are exposed so as to enable aeration. In comparison, women in the colder regions of the country drape it in a manner to achieve maximum coverage. There may also be variations in the choice of fabric according to the climatic conditions, with natural fibers like cotton (for summer) and silk (for winter) being the most popular choices.

It is based on the local economy as weavers form an essential part of the rural economy, with specialized handicrafts from different regions. This local production of such fabrics reduces the carbon, water and waste footprint due to travelling and packaging and thus is a practical way of ensuring sustainability after the production stage.

Figure 2: A weaver in rural India making a handloom fabric.



3. Does not usually fall into the cycle of 'in-fashion' and 'out-of-fashion', as traditional designs and patterns are cherished for many generations.

4. The rectangular shape gives an advantage for it to be repurposed as quilts, rags, wipes and patchwork handicraft much more easily as compared to a stitched garment. This has been shown vividly by Bairagi in the paper 'Recycling of Textiles in India' ^[6,7].

Figure 3: A patchwork rug from Kutch, Gujarat.

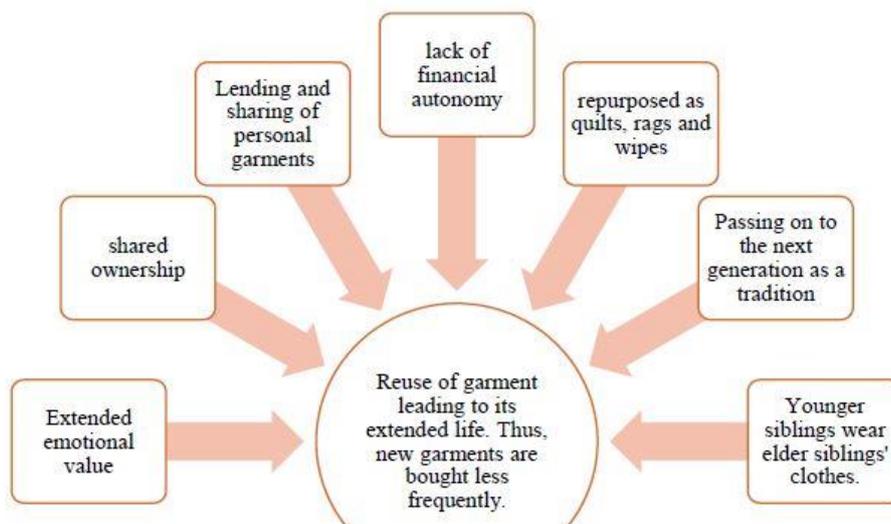


5. In some households, infant's and children's clothes are made from grandparents' discarded sarees. It is considered as a blessing from the elders to the younger generation. It helps avoid rashes on children's skin as repeated washings have had already softened the fabric. In the context of sustainability, it serves two purposes, a) it lends a new life to the old discarded garment, hence giving a chance to repurpose and reuse it. b) as children tend to outgrow their clothes very rapidly, the resources that go into making of new clothes are saved.

The Joint family system

The Ellen MacArthur report states that the average number of times a garment is worn, has decreased by 36% compared to 15 years ago [8]. This means that the use time of a garment has been reduced enormously. Therefore, the end-of-life of garments comes much more quickly than previously. Thus, larger volumes of textiles are disposed much more quickly than ever before. Thus, it becomes all the more important to extend the life of the garment by enabling multiple reuses and repair. In fact, extending the life of clothing just by an extra nine months of active use would reduce carbon, waste and water footprints by around 20-30% each and cut resource costs by 20% [9].

Figure 4: Factors that cause the reuse of a garment multiple times, which extends its life. This leads to less frequent purchase of new garments.



DISCUSSION

One such Indian tradition which leads to reuse of a particular piece of cloth multiple times is the system of joint families, where cohabitation leads to shared ownership of resources. This shared ownership extends the use of the resource to a longer duration as compared to its limited use by one single person. Lending and sharing of clothes amongst different members of the family is a regular affair. Since everyone in the family contributes according to their capacity and receives as per their need, the disadvantaged members in the society also get a fair share of resources. This kind of equitable distribution of resources ensures their optimum use. The lack of financial autonomy in the hands of a single person also helps in the avoidance of impulse and extravagant purchases. It also attaches an emotional and social value to the resource, as oftentimes it earlier belongs to someone emotionally associated with the current user. A higher emotional value usually translates into taking better care of the garment and hopefully a longer life, therefore extended value of the garment. This shared ownership also encourages repair of the garment. The clothes which do not fit any member of the family are usually repurposed as quilts, rags and wipes [10,12]. All these help in attaining a circular economy for textiles, as it encourages reuse multiple times. One of the hindrances in the mainstreaming of second-hand and recycled clothing amongst buyers is the fear of contagion. These concerns appear to reside in cast-off clothing's intimate links with unknown bodies, and cultural perceptions of the recycling system's ability to properly 'clean' these materials and transform them back again into textile fibers that can be worn again on the body [13]. However, this problem can be resolved when the person whom the cloth belonged to is known to the re-user. The clothes outgrown by elder siblings are worn by the younger siblings, and hence the fear of contamination is eliminated in such systems.

However, with the global adoption of monoculture and due to the changing lifestyle of the Indian population, these traditions are slowly losing popularity. People especially the young are choosing to wear stitched clothes. Oftentimes, such clothing restricts movement of the individual, hence coming in the Reuse of garment leading

to its extended life. Thus, new garments are bought less frequently. Extended emotional value shared ownership Lending and sharing of personal garments lack of financial autonomy repurposed as quilts, rags and wipes Passing on to the next generation as a tradition Younger siblings wear elder siblings' clothes way of the fast lifestyle. The joint families are disintegrating into smaller nuclear families due issues like lack of privacy, lack of financial autonomy and the poor bargaining power of women in large patrilineal cohabitations^[14,15].

CONCLUSION

The per capita textile waste in India is following an upward trend. This is worrying especially because India is soon to become the most populous country in the world. Hence the collective impacts of lifestyles of the Indian population will have huge environmental footprints. Moreover, as more and more people in India are climbing up the economic ladder, they are gaining access to more resources than before. We analyzed how the traditional systems of wearing of unstitched clothes and living in joint families have encouraged a circular economy for textiles. Our task for the future would be the redesigning of our current systems using the environmental merits of these and other such practices, so that the textile industry can achieve circularity such as community cloth banks that encourage sharing and lending. We also need to reconsider our design principles in the light of these age-old time-tested traditions.

REFERENCES

1. Bairagi N. " Recycling of Textiles in India". J Textile Sci Eng. 2014.1-2.
2. Bairagi N. "Recycling of Post-Consumer Apparel Waste in India: Channels for Textile." Journal of Textile Science & Engineering 1.2017.
3. Bick R, et al. "The global environmental injustice of fast fashion." Environmental Health. 2018.17.
4. Ellen MacArthur Foundation. "A new textiles economy: Redesigning Fashion's future.2017.19.
5. Evins R. "A review of computational optimization methods applied to sustainable building design". Renewable and Sustainable Energy Reviews.2013.22:230-245.
6. Malgorzata K. "Circular Economy – Challenges for the Textile and Clothing Industry.2018.343.
7. MSW Generation, Recycling and disposal in the United States. facts and figures, Washington DC: Environmental Protection Agency.2011.
8. Norris L. "Waste, dirt and desire: Fashioning narratives of material regeneration". The Sociological Review.2019.1.

9. Oberoi R. First post, Sari story: How its 108 wearing styles represent India, its people – and their many mutinies.2020.
10. Li B, et al. “Urbanization and its impact on building energy consumption and efficiency in China”. *Renewable Energy*.2009.34:1994–1998.
11. Lu Y, et al. “Building Information Modeling (BIM) for green buildings: A critical review and future directions.” *Automation in Construction*.2017.83:134-148.
12. Mateusa R, et al. “Environmental and cost life cycle analysis of the impact of using solar systems in energy renovation of Southern European single-family buildings”. *Renewable Energy*.2018.137:82-92.
13. Mishra K, et al. “Energy Analysis of High Rise Building Integrated with BIM”. *Indian Journal of Science and Technology*.12(6).
14. Oti A H, et al. “A Review of Information Modelling Systems in the Built Environment”. *Data-driven Modeling of Sustainable Engineering*,2019:161-174.
15. Peng C, et al. (“Building-Integrated Photo-Voltaics (BIPV) in architectural design in China”. *Energy and Buildings*.2011.43(12):3592–3598.