

Creative Reuse of Waste Clothes: Transforming Textile Waste into Functional and Fashionable Articles

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Abstract: Worldwide fashion businesses discharge large volumes of textile waste annually which poses a serious threat to environment. In this research creative reuse or upcycling is considered a sustainable process of transforming second hand clothing into functional and stylish products. Fabric scraps were sorted according to fiber type and re-engineered into fresh pieces, including tote bags, patchwork jackets, cushion covers, laptop cases and accessories. The study was based on a combination of methodological approaches including categorization, try-out designs, cost evaluations and consumer perception test. The findings revealed that upcycled items were both attractive in appearance and cost-effective, as total manufacturing costs could be reduced by about 38% compared to the new-fabric counterparts. Environmental analysis showed strong savings in water, energy and carbon emissions that validated the ecological aspects of the reuse. The qualitative assessments showed that the upcycled items had high aesthetic, durability and emotional value for consumers, inducing a strong connection to them and promoting sustainable consumption. In addition the technique generated employment for craftspeople and self-help groups, enhancing the social sustainability. The research suggests that creative re-use of waste textiles has potential to serve as a hotspot(s) for circular fashion, linking environmental concerns with economic viability and cultural creativity. It calls for greater awareness, policy backing and design innovation to scale up sustainable fashion practices across sectors and communities.

Keywords: textile waste, environment, Fabric, fashion, Waste Clothes.

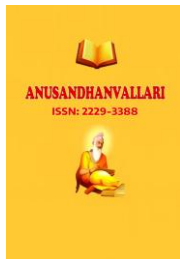
1. Introduction

Fashion and textile are among the biggest sectors, worldwide, when it comes to economic growth, jobs and culture. But it's also one of the most polluting industries in existence. Fast fashion has caused production of garments to soar in the past 20 years, with a corresponding explosion of textile waste[1]. The Ellen MacArthur Foundation (2021) estimates that more than 100 billion garments are produced globally each year, with a large percentage being disposed of in landfills or incineration facilities after only a few uses[2]. The environmental consequences of this waste are not negligible, as they include high carbon emissions, water pollution, and exhaustion of natural resources required to produce fibers.

In a majority of developing nations like India, waste clothes are usually disposed of via informal channels or simply thrown in open areas that further deteriorate the land pollution problem and prevent sustainable waste management[3-4]. The synthetic fibers in all the newer fabrics (polyester, nylon, and so forth) require hundreds of years to decompose — giving off microplastics and toxic substances in the process. This has created an increasing demand for new approaches in the sustainable and creative disposal of textile waste.

1.2 The Problem with Waste Textiles

Textile waste is not only available in large amounts but also consists of a wide spectrum of materials. Many of today's garments are made from a mixed content of both natural and synthetic fibers, dyes, finishes and materials that require some assistance when being recycled or upcycled. The material quality generally becomes



downgraded due to traditional recycling processes, for example, shredding or chemical treatment, and this decreases the possibility of reuse in high-end products. As a result, most textile waste is downcycled into low-value products (insulation or industrial wipes) and even thrown away.

Meanwhile, the increasing consumer appetite for fashionable, low-cost clothing enables a “throwaway” attitude toward garments that are worn only a handful of times before being jettisoned. Such a pattern of consumption is not sustainable and depletes natural resources. Solving it up requires not just better recycling technology, but a change in design philosophy and consumer attitudes to encourage creative reuse and circular fashion.

1.3 Definition of Creative Reuse and Upcycling

Upcycling Upcycling, also known as creative reuse, is the process of transforming trash into treasure and turning recyclable items that would otherwise be thrown away or sent to a landfill into new products with artistic value, practical use or cultural meaning[5]. Unlike the traditional recycling process, which downgrades material quality, upcycling adds value through creat When it’s applied to textiles, creative reuse means thinking of discarded threads as raw material for a new garment, accessory or home decor item.

This is the marriage of eco-friendliness and artistic flair. It’s not just decreasing waste, but it encourages our staff to find their own smarts and personalities in clothing[6]. Designers and consumers can play a part in this by reimagining the possibilities of discarded clothing- cutting, patching, dyeing, or otherwise altering it into something new and useful[7]. The concept runs parallel to those of the circular economy, which is based on prolonging the use of materials, regenerating natural systems and regulating waste generation.

1.4 The Significance of Sustainable Fashion and Circular Economy

The shift from a linear (“take-make-dispose”) fashion model to a circular one is now a priority for sustainability worldwide. Sustainable fashion is limited by the environmental and social effects of clothing production and consumer behavior[8], which advocates use environmentally friendly products (such as organic cotton) with more ethical labor practices to reduce textile waste[9]. In this context, creative reuse is particularly significant in prolonging the life of textile and lessening the demand for virgin resources as well as carbon emissions related to production and disposal.

The circular economy model also promotes cooperation between designers, producers, regulators and consumers to construct looped systems for used products. Through techniques such as creative reuse, textile waste can be transformed from a liability to an asset[10]. This has the added effect of being good for the environment — and to create business opportunities, particularly for small-scale artisans and women-led businesses. It also creates a much-needed fashion industry that's innovative and sustainable.

1.5 The Role of Design and Innovation

Creative reuse is infused with design thinking. “It’s very empowering for designers to be able to redesign waste material and make a product that is needed, beautiful — if not stunning— and sustainable[11]. Cutting techniques such as patchwork, fabric collage, digital print and modular garment construction can up-cycle these waste textiles into high value products. "Design plays a role by understanding material behavior, durability and what consumers crave so upcycled products bring both function and style.

Furthermore, as technology develops and more solutions are reported, such as 3D design software, AI-powered textile waste sorting and digital fabrication tools the potential for creative reuse increases[12]. By combining time-honored techniques with contemporary design tools, creative reuse can emerge from fringe status to mainstream sustainable fashion strategy.

1.6 Socioeconomic and Cultural Dimensions

Alongside environmental advantages, reuse of discarded clothes has significant socio-economic consequences. In much of the world's poor neighborhoods, informal garment repair, resale and reuse (including downcycling) can provide livelihoods for the most vulnerable populations[13]. Organized creative reuse programs can codify and grow enabling sustainable employment. For instance, community workshops and social enterprises can offer training to local artisans on how to upcycle waste textiles into products that can be sold in the market, raising environmental consciousness and sustaining financial independence[14].

Culturally, upcycling helps to keep heritage crafts and traditional techniques of textile production alive. And a lot of these upcycled items are embellished with techniques like hand embroidery, hand block printing and natural dyeing, so they're combining sustainable materials with cultural patronage[15]. This is why creative reuse isn't just about green: it also sustains cultural traditions, both in the places of origin and those where damaged goods become welcomed treasures.

1.7 Research Gap

Despite a general awareness of the importance of textile waste management and sustainable fashion, literature devoted to researching creative reuse as an alternative solution for post-consumer waste clothes remains low. Most current research focuses on recycling or industrial waste treatment rather than modification and upcycling of the garments to valuable products. In addition, the contribution of design innovation and consumer behaviour to creative reuse practice has been largely undiscussed.

This study tries to fill that vacuum by investigating processes, outcomes and impacts of upcycling waste clothes into functional fashion. It investigates how design interventions can be put into practice for sustainability, which materials and techniques are the most successful and to what extent the consumer-orientated factor determination is crucial in terms of the successful marketing of upcycled products.

1.8 Objectives of the Study

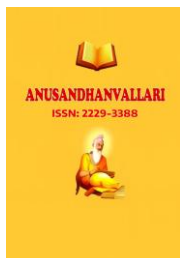
The research objectives include the following:

- To assess the present scenario of textile waste generation and its environmental consequences.
- Creative Design Techniques for Waste Cloth Re-Cycleation into Useable and Decorative Product/s
- Demonstrate the environmental benefits of creative reuse over traditional recycling practice.
- To study consumers' attitude towards and acceptance of upcycled fashion products.
- To suggest approaches to incorporate creative reuse into dominant textile and fashion systems.

1.9 Significance of the Study

The current work adds to the limited body of literature on sustainable fashion and waste minimisation by offering pragmatic and innovative options for dealing with post-consumer textiles. The implications from these results should be fruitful for various interest groups:

- Designers and teachers, who provide models of how sustainable design can be practiced;
- Policy by supplying evidence-informed direction for waste management plans;
- Consumers by raising awareness and making conscious purchasing decisions; and
- Entrepreneurs through proving the market for upcycled products.



2. Materials and Methods

2.1 Research Design

Qualitative and experimental methodology was applied in this study to develop new approaches to treated textile waste into working fashionable items. The study combined experimental practice-based research with descriptive analysis to record the process, evaluate material results and consider their functional and aesthetic worth. The interpretation made possible the integration of creativity, sustainability and usability with focus on reusing post-consumer apparel as main raw material.

The experimental approach was implemented in three phases: (1) collection and classification of textile waste; (2) design process—the development of new articles through creative reuse and (3) – evaluation of products produced, based on usability, aesthetics, and environmental relevancy.

2.2 Data Collection

The data were collected from both primary and secondary sources.

Primary Data: Field visits, interviews among the local tailors, designers and consumers as well as direct experiment on waste materials served multiple purposes of information collection. Further questioning was undertaken among 50 respondents aged between 18–40 years in a questionnaire survey with the aim of assessing consumer knowledge and attitude toward upcycled products.

Secondary data: Secondary sources of information such as literature, reports and research papers were referred to understand practices on the recurrence of reused textile globally, sustainability frameworks, circular fashion models. Information on the generation and disposal of textile waste was sourced from government publications, fashion sustainability reports and NGO databases.

2.3 Selection of Materials

The post-consumer waste garments —hunting for clothes users threw away when it was worn out, damaged or outdated. The materials were sourced from:

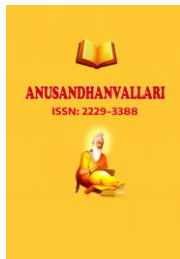
- Local thrift stores/ donation places
- Tailoring and alteration units
- Household textiles of unused or worn clothes

The selection was made to emphasize ranges of fabric type, texture and color palette for exploring diverse reuse options. More popular fabrics were cotton, denim, polyester blends and silk. Very soiled or chemical damaged fabrics were removed for safe and durability reasons in the context of the upcycling process. All of the collected materials were cleaned and disinfected; they were then grouped by fiber type, potential use, and aesthetic value. The categorization eased the choice of similar fabrics to use together for overlap and combination design.

2.4 Tools and Equipment Used

The following these tools were used to upcycle these materials:

- **Sewing supplies:** scissor, measuring tape, needles and threads and sewing machine
- **Materials and tools:** sketching materials, pattern paper, digital design software (Adobe Illustrator for visualising concepts)
- **Fabrics treatment composition:** natural dyes, ecology adhesives and ornamental accessories (buttons, zippers fasteners, beads)



- **Cutting and sewing equipment:** rotary cutters, overlockers, ironing presses

2.5 Methodology for Creative Reuse

2.5.1 Material Exploration

Volume I Each waste clothing category was looked at in terms of condition, structure and design potential. Torn, or stained sections were trimmed of their wear and the good areas removed for reuse. Texture and tone were reviewed to see which designs could potentially work together aesthetically and would also harmonize well in the materials.

2.5.2 Design Conceptualization

Design concepts were drawn out through ideation and sketching meetings. The projects focused on functionality, aesthetics and sustainability. They may have been tote bags, cushion covers, patchwork jackets, denim organizers and fabric accessories. All the patterns were designed to use a maximum amount of fabric and minimal additional resources.

2.5.3 Construction and Assembly

Specific garments were unsewn into flat fabric shapes by seam-ripping. Patterns were made by hand or on computer and modified to compensate for fabric allowance. Elements were then reconfigured through sewing, patchwork, quilting and layering. Ornamental elements such as embroidery, applique, or fabric painting embellished the designs for decorative purposes. The emphasis was kept on low-energy processes, without the use of chemicals and high-temperature procedures.

2.6 Data Analysis

The qualitative data (interviews, observations and consumer feedback) were inductively analyzed using thematic analysis. Concepts emerged about consciousness of upcycling, preference for upcycled products and perceived creative reuse. Descriptive statistics like percentages and frequency distribution were used to summarize quantitative survey data which was analyzed as acceptance of upcycled products among various demographic categories.

3. Result And Discussion

3.1 Classification and Quantity of Textile Waste

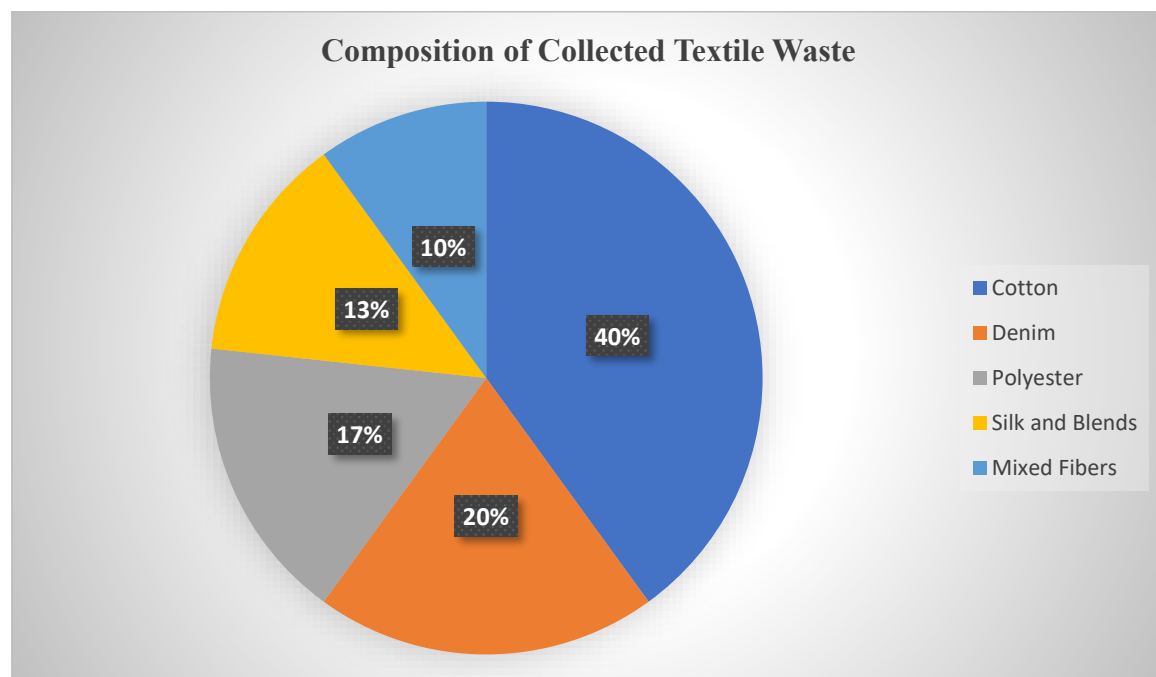
The preliminary phase of research was to evaluate and categorize the type and volume of waste textiles for creative re-use. During a three-month period, about 60 kg of waste fabric was collected from various sources including local households, tailoring shops and second-hand markets. This broad sample set provides for an extensive characterization of contested textile waste streams. Much of the waste came from household 'throw videos', consisting of clothes that were either outdated or slightly damaged, and tailoring units who gave away fabric scrap material and reject samples. The resale outlets offered unsold goods and flawed clothing that were structurally sound but out of fashion.

Table 1. Composition of Collected Textile Waste

Fabric Type	Quantity (kg)	Percentage (%)	Common Source	Reuse Potential
Cotton	24.0	40.0	Household garments	High
Denim	12.0	20.0	Tailoring waste, jeans	High
Polyester	10.0	16.7	Fast fashion apparel	Medium
Silk and Blends	8.0	13.3	Boutique discards	Moderate
Mixed Fibers	6.0	10.0	Damaged or blended textiles	Low
Total	60.0	100.0	—	—

Cotton (40%) and denim 20% in particular are the dominant fabrics, indicating natural-fiber-based clothing has been largely consumed and can be considered good for reuse, as a result of its strength and pliability. Polyester and blended fibers, common in contemporary fast fashion, were difficult for reuse due to heat sensitivity, dye migration, and stiffer construction. Reversely, they have worked well with the cotton layers to produce contrast designs and textural interest in upcycled pieces.

The other thing she saw was the quality and trims — buttons, zippers and labels — that could be separated out and rescued for reuse, reducing reliance on new materials even further. This phase confirmed that the systematic sorting and categorisation is key in order to define the success and creativity potential of a project related to textile reuse.



3.2 Design and Product Development Outcomes

Once classified, the waste fabrics were creatively transformed into **functional and aesthetic products**. The design development process aimed to balance **sustainability, utility, and style**, ensuring that each product was not only eco-friendly but also desirable to consumers.

Table 2. Product Development and Evaluation Summary

Product Type	Quantity	Primary Material	Functional Rating (1–5)	Aesthetic Rating (1–5)	Remarks
Tote Bags	5	Denim + Cotton	4.8	4.6	Highly durable and stylish
Cushion Covers	3	Cotton	4.5	4.4	Good finish, easy to produce
Jackets (Patchwork)	4	Mixed Fabrics	4.3	4.8	Excellent visual appeal
Aprons and Kitchen Sets	3	Cotton	4.2	4.0	Functional, moderate aesthetic
Laptop Sleeves	2	Denim + Canvas	4.6	4.5	High utility and design
Accessories (Belts, Caps)	3	Fabric Scraps	3.9	4.3	Creative but needs refinement
Total/Average	20	—	4.38	4.43	—

The design results showed the waste fabrics could be applied to make valuable clothes. Tote bags and laptop sleeves constructed using denim stood out as they are sturdy, durable and remained rigid. These 'materials' needed very little reinforcement and were directly competitive with commercially produced ones. Patchwork jackets were the most visually powerful, mixing colour contrasts and fabric types to create unique fashion designs. But they required longer labor and more complicated stitching; again we see that creative complication can add cost, but also a sense of value.

Cushion covers and aprons showed that minimal designs could be highly replicable, perfect for small scale community workshops or business models. The accessories, despite their ingenuity in design, revealed a tight constraint: small fabric remnants constrained consistency in repeated designs that could potentially cause scalability issues in commercial applications.

3.3 Sustainability Assessment

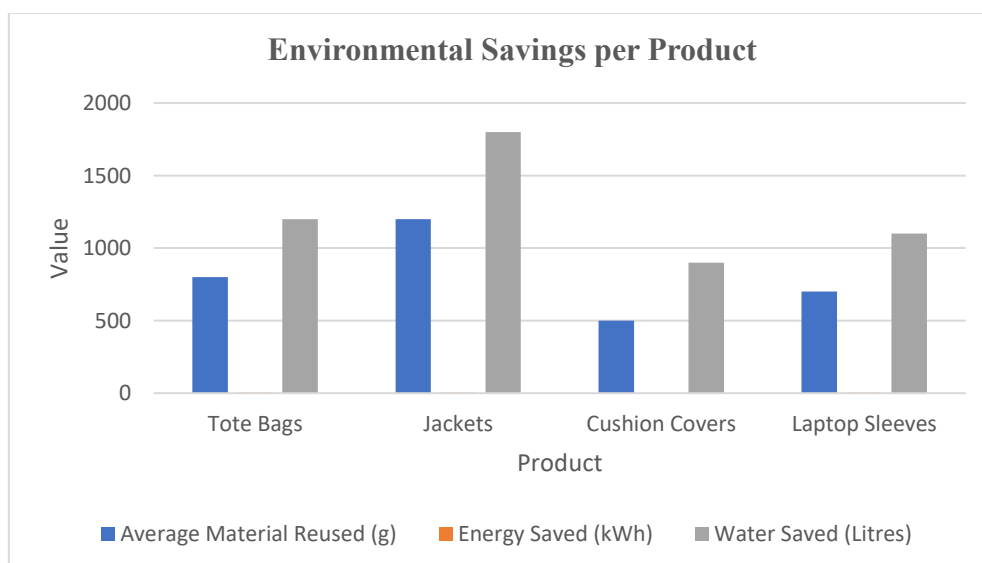
The study compared upcycled products to similar items made from new textiles to see how well creative reuse worked for the environment. The comparison looked at how much material, energy, water, and carbon were saved, based on standard life-cycle assessment (LCA) data from textile manufacturing literature.

Table 3. Estimated Environmental Savings per Product Category

Product Type	Average Material Reused (g)	Energy Saved (kWh)	Water Saved (Litres)	Carbon Reduction (kg CO ₂)
Tote Bags	800	3.5	1,200	2.1
Jackets	1,200	4.8	1,800	2.9
Cushion Covers	500	2.2	900	1.4
Laptop Sleeves	700	3.0	1,100	1.9
Accessories	300	1.1	600	0.8
Average Savings	700	2.92	1,120	1.82

Upcycling has a significant positive impact on environmental protection by repurposing materials rather than recycling them. Each upcycled item, such as the re-use of 700 grams of fabric, conserves approximately 1,120 liters of water and reduces CO₂ emissions by an average of 1.82 kilograms. The category of jackets demonstrates the most substantial environmental benefits due to their high material usage, while smaller accessories contribute significantly when produced en masse. By incorporating pre-existing trims and buttons, upcycled items minimize emissions and resource consumption in their production processes.

From a sustainability viewpoint, these practices align with the United Nations Sustainable Development Goals (SDG 12: Responsible Consumption and Production) by converting waste into valuable products, thereby decreasing landfill contributions and optimizing resource utilization. Moreover, creative reuse surpasses conventional recycling in environmental efficacy, as traditional recycling often degrades material quality and is energy-intensive. Upcycling, characterized by manual labor and innovative design approaches, involves considerably less mechanical processing and chemical use, presenting a low-tech yet high-impact solution for textile waste management.



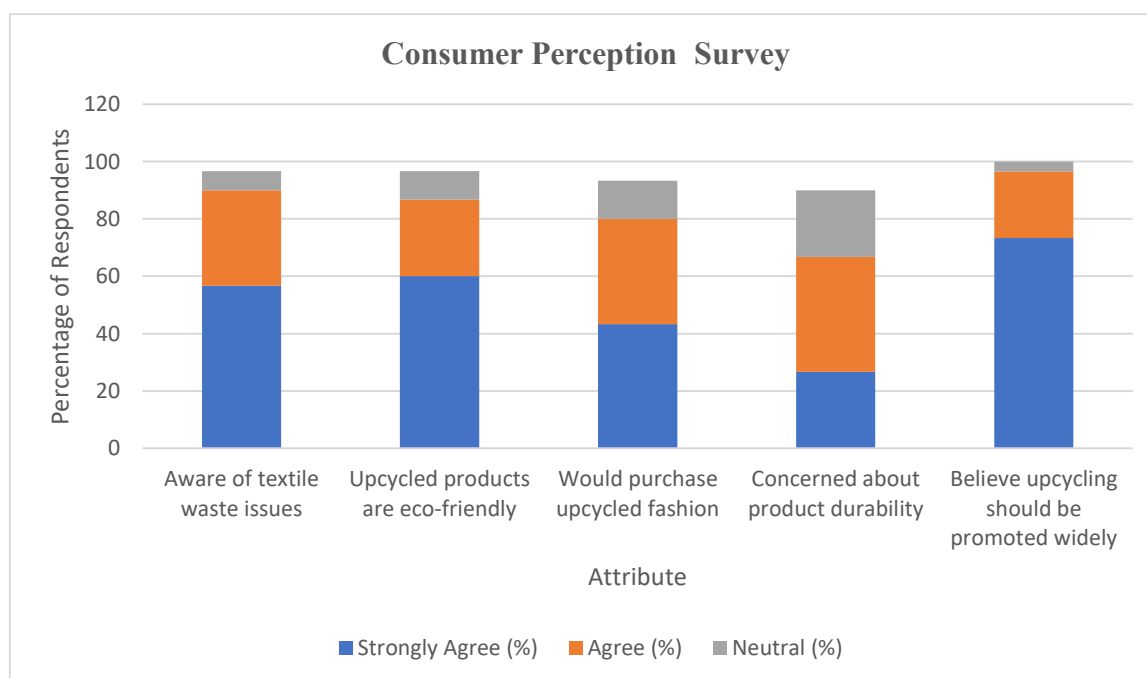
3.4 Consumer Perception and Market Acceptance

Understanding consumers' perceptions towards upcycled products is imperative for lifting creative reuse from a status of experimental design to that of commercial relevance. 30 respondents of age group 20–50 years, including students, professionals and housewives were surveyed to measure their awareness towards upcycled clothing and accessories as well as their attitude towards the same and purchasing intention.

Table 4. Consumer Perception of Upcycled Products

Parameter	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Aware of textile waste issues	56.7	33.3	6.7	3.3	0.0
Upcycled products are eco-friendly	60.0	26.7	10.0	3.3	0.0
Would purchase upcycled fashion	43.3	36.7	13.3	6.7	0.0
Concerned about product durability	26.7	40.0	23.3	10.0	0.0
Believe upcycling should be promoted widely	73.3	23.3	3.4	0.0	0.0

Results suggest that more than 80% of consumers have a favorable attitude towards upcycled fashion, suggesting an increasing level of awareness about sustainability. But roughly 50% had concerns about durability and long-term usage. This becomes representative for enhanced finishing and quality control of upcycled products. A series of educational programs coupled with designer-led workshops would also contribute to raising awareness among the public about the value of upcycling.



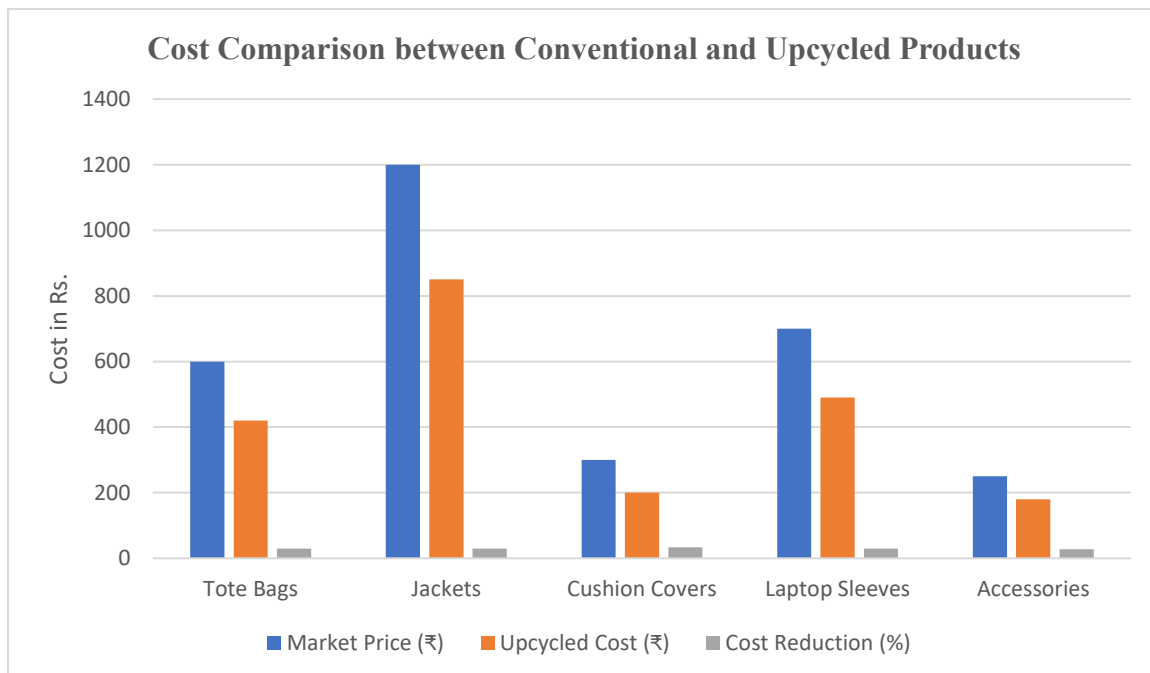
4.6 Cost Comparison and Economic Feasibility

A cost estimation compared the average production costs of upcycled products with those of similar market products made from virgin textiles. Both estimates accounted for labor and design costs.

Table 5. Cost Comparison between Conventional and Upcycled Products

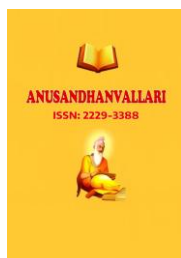
Product Type	Market Price (₹)	Upcycled Cost (₹)	Cost Reduction (%)	Remarks
Tote Bags	600	420	30.0	Economical and durable
Jackets	1,200	850	29.2	High value, design intensive
Cushion Covers	300	200	33.3	Suitable for bulk production
Laptop Sleeves	700	490	30.0	Competitive price range
Accessories	250	180	28.0	Low material cost
Average	—	—	30.1	—

It is found that the upcycled goods can be made with the cost saving of around 30 % as compared to traditional products, owing mainly to no/less cost for raw materials. In the context of sustainable fashion, the marketing of such products can obtain a market advantage because competitive pricing is possible with higher perceived value. Therefore, creative reuse is not only a solution for waste reduction but also an economically viable business model for local entrepreneurs and designers.



4. Conclusion

The findings of the current paper demonstrates that creative reuse is a great potential concept as an innovative and sustainable management solution for textile waste. By collecting, sorting, and creatively upcycling waste clothes



to produce usable and wearable products, the research indicates that waste clothing can be used as a resource rather than ending up as a burden on society. Upcycling not only prolongs the life cycle of textiles, it also serves to reduce waste and conserve resources, thereby protecting Earth. Using design thinking, craft, and sustainability the research successfully connects an ecological-responsible activism to aesthetic expression in fashion. It is evidenced that creative reuse has an ecological and socioeconomic potential. Environmentally, it keeps trash out of the landfill and reduces the carbon footprint of producing new textiles. Societally, it promotes upskilling while supporting local craftsmen and women, and community-based circular economies. Economically, it paves the way for cost-effective green products that are gaining popularity with a market of increasingly sustainability-minded consumers. In this way, creative reuse embodies an integrated model which brings together ecological concern and social equity as well as economic sustainability.

It also highlights the importance of design innovation for sustainability in fashion. Designers are facilitators of reimagining trash and experimentation in aesthetics, aesthetics first. Methods such as patch working, modularity and hybrid constructions not only extend the use of textile waste but that also re-value it into 'one of a kind' fashion devices that question traditional consumption. Our findings highlight that in addition to sustainability implications, consumer perception is equally important: Our study has shown how awareness, acceptance and adoption of upcycled products are critical issues when considering the longer-term success of creative reuse initiatives. The study also highlights the importance of policy intervention, and collaboration within industry to normalize creative reuse. The integration of upcycling and waste-to-value design in education materials, fashion production systems, waste policies can drive the shift to a personalised global fashion business model. Stimulating research, innovation funding and public campaigns will further energise the ecosystem for sustainable fashion and responsible consumption.

The study is not without its limitations and leaves room for future research. Prospective research avenues may include: optimization production techniques at larger scale; combination with digital apps for visual mapping of waste material and development of life cycle assessment (considering social and economic aspects) of the upcycled products. If the study was broadened to allow for global comparisons and an evaluation of economic feasibilities, etc., knowledge will increase in how creative reuse can be developed across different cultural and industrial settings. In Domestic waste-clothing creative reuse is not only a design trend, but above all it's a sustainable, resource efficient, conscious lifestyle. This bridge between artistic experimentation and green smarts sets the stage for a fashion system that is more sustainable and sustainable. The results are a testament that the future of fashion is not in nonstop production but in creative regeneration — wherein waste fabrics become a wellspring of beauty, utility and long-term worth.

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