

“Sustainable Practices of Handloom Weaving Industry in India”

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Abstract:

India's rural economy depends heavily on handlooms and handicrafts, which provide a living for innumerable villages. Weaving with natural fibers like cotton, silk, and wool is the focus of numerous handloom enterprises in India, which are essential to local economies. With a focus on Toda embroidery, a traditional craft practiced by the Toda community in the Nilgiri Hills, this study examines sustainable strategies in the handloom sector. The purpose of the study is to investigate current sustainability methods and their long-term effects on the environment. It also assesses how the business is impacted by customer demand for eco-friendly handloom goods, especially those made with natural dyes. The study explores how government programs and regulations may encourage sustainable practices and give craftspeople the assistance they need. The study also emphasizes how Toda embroidery, with its elaborate patterns and environmentally friendly practices, is essential to maintaining environmental sustainability and cultural legacy. The report offers insights into the sector's possibilities, challenges, vulnerabilities, and strengths by looking at the supply chain and available resources. In the end, this paper aims to investigate how the handloom sector—specifically, Toda embroidery—can support sustainable growth while preserving India's unique cultural heritage.

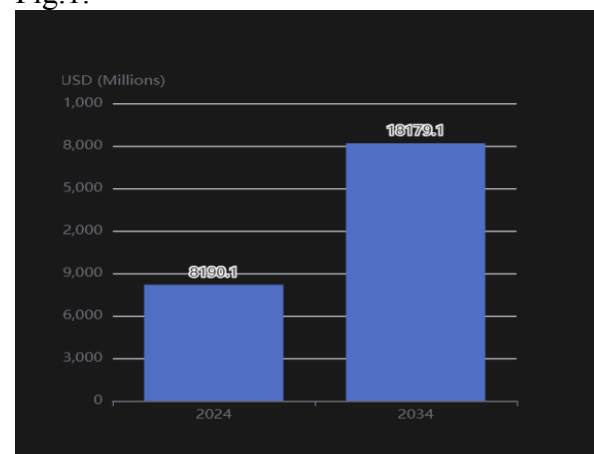
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Introduction:

A significant part of the country's cultural heritage, the Indian handloom industry is well-known for its age-old methods of hand spinning, weaving, and printing. This business, which is primarily located in rural areas, employs about 35 lakh people, including 25 lakh women, making it the second-largest employer in rural areas after agriculture. With 23.77 lakh looms, the handloom sector contributes significantly to the economic independence of women. Products from this industry, including Patola sarees, Varanasi brocades, Chanderi muslin, and Toda needlework, exhibit a wide variety influenced by regional and societal customs. These sustainable and eco-friendly textiles are made with locally sourced materials and traditional techniques that lessen their negative effects on the environment. According to the 4th All India Handloom Census (2019–20), the handloom sector contributes approximately 15% of India's fabric production, with 28.2 lakh looms and 35.22 lakh workers. The industry's flexibility in meeting market needs, low energy consumption, and capacity to produce limited quantities with distinctive designs have enhanced its appeal both domestically and internationally. Programs like the "India Handloom Brand" initiated by the National Handloom Development Corporation

(NHDC) have further promoted these products to younger consumers and specialized markets. Despite its advantages, the sector faces the challenge of maintaining its cultural heritage while adapting to contemporary market demands. The global handloom market, valued at USD 8,190.1 million in 2024, is expected to reach USD 18,179.1 million by 2034 (Fig.1), offering substantial growth prospects. There is still a need to integrate contemporary ecological practices into the handloom sector without sacrificing age-old methods, nevertheless. The purpose of this research is to examine how sustainable practices are incorporated into the handloom industry, assess how they affect both economic and environmental

Fig.1.



Projected Growth of the Global Handloom Market (2024-2034)

sustainability, and identify ways to close the gap between conventional practices and contemporary sustainability norms. The necessity to strike a balance between cultural heritage preservation and the shifting needs of the global economy limits the research.

Reviving Indigenous Handloom Clusters: A Sustainable Approach to Preserving India's Textile Heritage

The traditional handloom clusters of India, which are crucial to its cultural identity, are experiencing a decline due to modernization, power loom competition, and waning consumer interest. Once-thriving weaving centres such as Banaras, Kanchipuram, Chanderi, and Assam now struggle with reduced artisan participation, financial challenges, and evolving market demands. The significant decrease in active weavers across many areas underscores the pressing need for revitalization. Sustainability presents a potential remedy, incorporating environmentally friendly materials, ethical production practices, and digital platforms to improve market accessibility. A major obstacle for these clusters is the competition from mechanized textile production, which threatens the authenticity and economic viability of hand-woven fabrics. Government programs like the National Handloom Development Programme (NHDP), Market Access Initiative (MAI), and Raw Material Supply Scheme (RMSS) aim to offer financial support, skill enhancement, and improved market integration for weavers. Additionally, a shift in consumer preferences towards sustainable and ethically produced goods creates new opportunities for handloom clusters to showcase their traditional, eco-friendly techniques. A prime example of this is Toda embroidery from Tamil Nadu, where the Toda tribal community has maintained its distinctive red and black geometric patterns on cotton fabric using natural dyes and ethical handcrafting methods. The growing popularity of Toda embroidery illustrates how embracing sustainability can safeguard traditional art forms while enhancing artisans' economic

stability. By implementing sustainable practices, leveraging government support, and promoting eco-conscious techniques, India's handloom clusters can reclaim their prominence in the textile industry, preserving both heritage and livelihoods.

Toda Embroidery: A Tribal Handloom Weaving Tradition

The Toda people, an indigenous group residing in the Nilgiri Hills of Tamil Nadu, have a rich cultural legacy with a population of approximately 1,600 individuals spread across 69 settlements. Around 400 members of this community practice the traditional art of embroidery, primarily in the higher regions of the Nilgiri Plateau. Historically, the Todas were pastoral, with their lifestyle revolving around buffalo herding, farming, and artisanship. Their renowned craft, Toda embroidery, is not only a crucial element of their cultural identity but also provides economic support for the community. This skill, transmitted through generations mainly by Toda women (Fig.2), has developed into a form of cultural expression while simultaneously sustaining the community. Toda embroidery, with its millennium-long history, is distinguished by complex geometric designs and distinctive stitching methods.

Fig.2.



Toda Women Community

Locally referred to as "Pugur" (meaning flower), it is predominantly stitched onto a shawl known as "Poothkuli," recognizable by its alternating red and black stripes. Toda

embroidery is intrinsically linked to sustainable handloom practices. The Toda people utilize locally sourced, environmentally friendly materials and traditional techniques that minimize ecological impact. The embroidery is performed on hand-woven, unbleached cotton fabric, which is loosely woven and matted to accommodate intricate needlework. This approach eliminates the need for chemical treatments, aligning with the community's long-standing dedication to conserving natural resources. Additionally, plant-based natural dyes are employed to create the characteristic red and black hues, reducing pollution and helping maintain the ecological equilibrium of the Nilgiri area. The embroidery process is entirely manual, requiring no electricity, further emphasizing its energy-efficient nature. The Toda's commitment to these sustainable methods ensures that their craft remains environmentally friendly and supports the community's long-term sustainability. The design motifs in Toda embroidery draw inspiration from nature, mythology, and everyday life. The buffalo horn motif holds particular importance, as buffaloes are revered in Toda culture. Other motifs include geometric shapes and depictions of various elements such as celestial bodies, flora, fauna, and dwellings. A prominent motif is the Thur Puhur, a 'W'-shaped design (Fig.3) typically positioned at the centre of the traditional Puthkuli shawls. The shawl's edges are often embellished with additional intricate patterns like heart shapes, diamonds, arrows, and triangles. These shawls are traditionally donned during important cultural events such as weddings and festivals, serving as emblems of tradition and cultural expression.

The Geographical Indication (GI) status granted to Toda embroidery (Fig.4) in 2013 has significantly enhanced its visibility and market appeal. This recognition safeguards the craft's authenticity and shields it from imitation, thereby improving the economic

conditions of Toda artisans. The Tamil Nadu government has backed these

Fig.3.



W-Shaped Design (Thur Puhur)

efforts through ventures like the 'Toda Handicraft Sale Emporium,' which markets Toda embroidered goods.



Fig.4.

Toda Embroidery

Additionally, the Ministry of Textiles' Office of the Development Commissioner (Handicrafts) has implemented the 'Ambedkar Hastashilp Vikas Yojana (AHVY)' program, expanding the range of Toda products to include items such as shoulder bags, picture frames, and notebooks. The Nilgiri Adivasi Welfare Association (NAWA) has been instrumental in promoting Toda embroidery among women by organizing marketing initiatives,

design development programs, and exhibitions.

The Kotagiri Women's Co-operative Cottage Industrial Society Ltd. has aided the community by selling their embroidered products and fostering creative product development. Furthermore, private sector partnerships, like Jaypore's collaboration with Tamil Nadu artisans, have introduced Toda embroidery to mainstream fashion markets by offering shawls and scarves for retail. However, the craft faces challenges, particularly the waning interest of younger generations in learning Toda embroidery, largely due to migration for education and employment. This trend jeopardizes the craft's future as fewer individuals are willing to carry on the tradition. To address this issue, government and NGO-led initiatives continue to focus on preserving the craft through training programs and financial support, aiming to maintain Toda embroidery as a vital part of the community's cultural and economic fabric. Toda embroidery exemplifies the creativity and cultural wealth of the Toda community. By emphasizing sustainable practices, natural materials, and traditional techniques, this craft has successfully adapted to modern markets while preserving its cultural significance. With ongoing support from government schemes, NGOs, and private collaborations, Toda embroidery is well-positioned to flourish in the contemporary textile landscape, ensuring its preservation for future generations. The current efforts to revitalize and promote this craft offer hope for the sustainability of both Toda embroidery and the cultural heritage of indigenous communities like the Todas.

Assessing the Role of Government Policies in Promoting Sustainability in the Handloom Industry

The Indian government has implemented various measures to bolster the handloom industry, focusing on sustainability and job creation, especially for underprivileged groups. The Textiles Ministry hosts

exhibitions to showcase and market handloom and handicraft items. Artisans receive crucial technical assistance from institutions like Weavers' Service Centres (WSCs) and Indian Institutes of Handloom Technology (IIHTs). Other entities, such as State Directorates of Handlooms and Textiles, the Handloom Export Promotion Council, and the National Handloom Development Corporation, play significant roles in advancing the sector. Government initiatives have been key in supporting handloom weavers. Financial assistance through grants and subsidies promotes innovation and business growth. The Weaver MUDRA Scheme offers low-interest loans, while the National Handloom Development Programme (NHDP) emphasizes skill enhancement and education for weavers and their families. Multiple programs address industry challenges. The Handloom Weavers' Comprehensive Welfare Scheme (HWCWS) provides insurance coverage for workers, and the Comprehensive Handloom Cluster Development Scheme (CHCDS) supports the development of large handloom clusters. The Yarn Supply Scheme (YSS) ensures weavers can access raw materials at reasonable prices.

Additionally, the government passed the Handlooms (Reservation of Articles for Production) Act, 1985, protecting handloom workers from power loom competition. The Government e-Marketplace (GeM) platform enables over 1.5 lakh weavers to sell directly and access credit. In 2020, the AatmaNirbhar Bharat Abhiyaan was introduced to provide economic relief and credit support to handloom businesses, aiming to promote sustainable growth and preserve cultural heritage.

Evaluating the Long-Term Impact of Sustainability on the Environmental Footprint of the Handloom Industry

In earlier times, handloom weaving relied entirely on locally available raw materials, indigenous techniques, and natural dyes

extracted from plants or animals. Each region had its own distinct methods of hand-spinning and weaving, resulting in unique textile traditions. These handcrafted textiles not only represent the rich cultural heritage of different communities but also require significant effort, patience, and skill to produce. The use of organic raw materials and traditional techniques ensures that handloom textiles have a minimal environmental impact compared to machine-made fabrics. Supporting handloom enterprises plays a crucial role in preserving artisanal traditions while simultaneously promoting sustainable production practices.

At an estimated ₹50,000 crore (USD 6 billion), the handloom industry plays a significant role in India's economy, especially in rural and semi-urban areas. Because of its eco-friendliness and handcrafted attractiveness, handloom weaving continues to hold a niche market despite competition from mechanized textile manufacturers. Both local and foreign exports have contributed to the steady increase in demand for handloom goods. However, because of government programs and the growing global emphasis on sustainable and ethical textiles, the sector's precise GDP contribution varies. The growth of e-commerce platforms has improved accessibility and visibility even further, giving handloom craftspeople a wider market reach.

With 15 of the 17 Sustainable Development Goals (SDGs) addressed, the handloom sector supports the goals of the UN. By generating job possibilities, it helps to reduce poverty and ensure food security. Employee health is not at risk due to the non-toxic nature of the production process. By providing both men and women jobs, handloom weaving ensures that money benefits entire families rather than just individuals, so boosting gender equality. Contrasting to power looms, handloom manufacture does not consume a lot of energy, water, or contribute to environmental damage. Additionally, it maintains cultural traditions, promotes responsible production

and consumption, and stimulates economic progress. The industry is generally seen as an example of ethical manufacturing since it refrains from using excessive fossil fuels, fast production cycles, and abusive labour practices.

Handloom weaving is an instance of a craft-based industry that supports sustainability by limiting waste, avoiding excessive energy use, and emphasizing fair economic growth. By incorporating sustainable practices, the industry's carbon impact is decreased, long-term survival is guaranteed, and India's rich textile legacy is better known worldwide. Handloom weaving is an ideal instance of a sector that strikes a balance between environmental responsibility and economic growth as awareness of sustainable fashion rises.

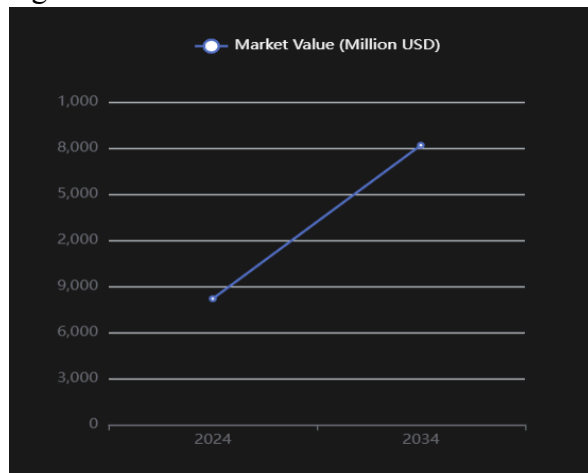
Exploring Consumer Perception and Demand for Sustainable Handloom Products in India

In India, consumer interest in handloom products varies by geography, with urban places like Delhi and Mumbai exhibiting a lower preference than cities like Kolkata and Hyderabad. Because of its distinctiveness, cultural significance, and usage in formal and religious contexts, handloom textiles are prized. They are also becoming increasingly popular in traditional clothing like jackets, kurtis, kurtas, and sarees, as well as in home furnishings like curtains and upholstery. Many customers buy handloom goods from well-known retail companies and government-run businesses like Khadi Bhandar and Fab India. However, problems still exist since power loom products often appear to consumers as handloom items.

India's consumer demand in handloom goods vary by region, with metropolitan places like Hyderabad and Kolkata displaying a greater preference than important export hubs like Karur, Panipat, Varanasi, and Kannur, India exports handloom goods to more than 20 nations. The global handloom market, valued at USD 8,190.1 million in 2024, is projected to grow to USD 18,179.1 million by 2034,

with a CAGR of 8.30%(Fig.5). The Countries like USA, UAE, Spain, and the UK are major importers. The need for distinctive and environmentally friendly textiles is expected to propel the global handloom market's growth. International trade agreements and e-commerce platforms have increased market accessibility, which is advantageous for craftspeople.

Fig.5.



Projected Growth of the Global Handloom Market (2024-2034)

The market is dominated by sarees, which are made from handlooms and have become increasingly popular due to the growing trend towards sustainable consumerism. Because of their sustainability and longevity, handloom sarees are becoming more and more popular among younger consumers who are influenced by fashion designers and social media.

Pricing and consumer impression issues still exist, though, as some consumers are overlooking to deceptive advertising. To encourage the expansion of the handloom industry, regulations and market awareness are required.

Conclusion

The handloom industry in India plays a significant role in rural economies, providing livelihoods to millions, particularly women. The sector is rooted in traditional weaving methods that prioritize eco-friendly practices and sustainability. Toda embroidery, an

example of sustainable craftsmanship, uses locally sourced materials and natural dyes, minimizing environmental impact while preserving cultural heritage. Government initiatives like the National Handloom Development Programme and financial schemes for artisans support the growth and sustainability of the handloom sector. Despite challenges like mechanized competition and declining interest among younger generations, initiatives to promote sustainability and preserve traditional crafts are crucial. Additionally, consumer demand for eco-friendly handloom products has risen, creating opportunities for the sector's growth. By integrating sustainability into production, handloom weaving not only contributes to environmental conservation but also promotes economic growth and cultural preservation. With continued government support, sustainable practices, and a growing market, the handloom industry has the potential to thrive while safeguarding India's rich artistic traditions for future generations.

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