

Climate Finance for Sustainable Fashion in India

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Abstract: *Climate finance encompasses funding from public, private, and transnational sources aimed at addressing climate change by dramatically reducing greenhouse gas emissions and mitigating their adverse effects. In India, the government has primarily focused on solar, electric vehicles, wind, hydro, bioenergy, and green energy. However, attention to rural occupations like handlooms, handicrafts, handmade/recycled paper, and coir is essential for progress, as these sectors are gaining traction due to global consumer preferences and awareness. With increasing global demand for products made through clean processes, India can scale up these three sectors under Sustainable Fashion, provided adequate funding is secured. This would not only bolster the economy but also create significant employment opportunities. Given my background in sustainable fashion, this paper explores the potential of climate finance to generate green growth in the handlooms, handmade/recycled paper, and coir sectors. It begins by addressing the challenges of sustainable fashion, India's journey, and the climate impact. The second section examines institutions related to these sectors and the rise of sustainable companies that are defining sustainability indexes. The final part presents stakeholder opinions and concludes with findings. The paper indicates that scaling up sustainable practices in India can significantly mitigate climate change, necessitating prioritization of funds for Sustainable Fashion. Implementing the recommendations made would enhance economic growth in rural India and generate substantial employment, emphasizing the need for climate finance to support Sustainable Fashion initiatives.*

Keywords: climate funds, climate change, sustainable fashion, fast fashion, handlooms

1. Introduction

Sustainable Fashion, eco-fashion or slow fashion, refers to products, processes, and stakeholders (policymakers, brands, consumers) striving for a carbon-neutral fashion industry grounded in equality, social justice, animal welfare, and ecological integrity¹. Behavioral scientists and marketing scholars have recognised the concept of lifestyle as the basis of human behaviour (Tigert, D.J., King, C.W. and Ring, L., 1980). and other products. Sustainable fashion represents a lifestyle choice that impacts decisions in clothing, décor, jewelry, and more.

If considered as a separate country, the global fashion industry's Gross Domestic Product would rank as the seventh largest economy in the world. (McKinsey 2017)². As the second largest pollutant in the world,³ the fashion industry is responsible for 10% of global carbon emissions, expected to rise to 25% by 2050, and is the second-largest consumer and polluter of water. About 60% of fabric is polyester, leading to 500,000 tons of plastic waste, which accounts for 31% of ocean plastic. (Gallo, F., Fossi, C., Weber, R., Santillo, D., Sousa, J., Ingram, I., Nadal, A. and Romano, D., 2018). The Fashion industry at large, relies on huge manual labour force and is built on an unorganised supply chain system⁴. The objective of each of these individual processes—whether material- or human-intensive—is to merely work towards meeting the demands made by brands, factories and companies, without consideration towards collaboration or communication between each other⁵.

The goal of system maintainability or sustainable chain is to create regularities in individual processes to achieve a cohesive, collaborative and supported system, while considering human impact and social responsibility such that natural and human resources are not abused, but rather, maintained within an ethical decorum aligning with climate resilience (Woodside, A.G. and Fine, M.B., 2019).

Sustainable Fashion is crucial for supporting sustainable development and addressing climate change, primarily due to the environmental damage caused by the fashion industry. As

eco-conscious consumer awareness rises, many fast fashion brands are rebranding themselves as "sustainable brands." (Sneddon, C., Howarth, R.B. and Norgaard, R.B., 2006.)

While there are several cases questioning the authenticity of the sustainability claims made by these big companies, many home-grown brands are mushrooming in India with a passionate objective of sustainable fashion and working towards the same. (Adamkiewicz, J., Kochanska, E., Adamkiewicz, I. and Łukasik, R.M., 2022). Brands that are genuinely working towards sustainable fashion are consciously transparent about their processes, making sure that they utilise and acknowledge local resources and community.

Fast fashion advertising and marketing has convinced society that the industry is now organic and mostly circular, recycling discarded clothes into brand new ones. However, in reality, every year six out of 10 bundles of apparel reach the garbage dump or a trash incinerator (Elia, A., 2019). In fact, 13% of scrapped clothing is recycled into products like wipes or mattress stuffing, and recycled fabric makes up only 1% of the market of which only 1% is organic⁶. At Cop26, PM Narendra Modi announced the "Panchamrit" plan, committing to 500 GW non fossil fuel energy by 2030, 50% renewable energy, reducing carbon emissions by 1 billion tonnes, cutting carbon intensity by 45% and achieving net zero by 2070.

India is advancing in sustainable fashion, with the market projected to grow from \$10,109.9 million in 2025 to \$15,584.2 million in 2025 to \$15,584.2 million by 2030, at a 9.0% CAGR, Environmental Minister Bhupendra Yadav promoted sustainable fashion at COP –27, aligning with Modi's LiFE initiative.

This study explores the need for Climate Finance or Funds assigned for Sustainable Fashion in India.

2. Background

(i) Challenges of Sustainable Fashion

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Sustainable Fashion, focuses on ethical and environmentally friendly processes, gaining greater emphasis due to climate change. (Spence, A., Poortinga, W. and Pidgeon, N., 2011. (2012)). With more consumers becoming aware of the consequences of fast fashion, there has been an increase and shift of consumption towards slow fashion¹¹.

Price Points- One of the basic disadvantages for slow fashion brands is the extremely low pricing that fast fashion brands offer (Multala, B., Wagner, J. and Wang, Y., 2022). Fast fashion pricing remains competitive due to excess production outsourced by labels, driven by rigorous supply chain performance, tight deadlines, and monetary incentives. Consequently, this leads to environmental compromise and reliance on fast, unethical processes to meet targets.

Sustainable/Slow Fashion, on the other hand, is focused on smaller consignments, and ensures that the production process of the garment is an ethical and conscious one¹². Unfortunately, this comes at a cost and therefore affects the pricing of the product. So, given a choice, a consumer zeroes in on fast fashion rather than the more expensive slow fashion product.

Process: The era of digitisation has globalised the markets and made them open to trade. The digitisation helped to be an advantage to look for resources that only focused on profits throughout the globe (Fletcher, K., 2013). Developing countries became manufacturing hubs for Western markets, causing labor exploitation, resource overuse, environmental pollution, and excess waste ending up in landfills due to fast fashion. (KY Hiller Connell, JM Kozar, 2017). On the other hand, slow fashion takes longer to produce goods, but ensures that processes are clean, ethical and curbs over production.

Orientation: Fast fashion prioritizes profits over the product lifecycle, operating on a take, make, dispose model, with extreme margins driven by resource exploitation and labor. (P Gazzola, E Pavione, R Pezzetti, D Grechi, 2020). Fast fashion operates linearly, scaling rapidly to cover expenses like marketing and PR, ensuring brand visibility and sales.

Slow Fashion emphasizes sustainability by aligning with the principles of people, planet, and profits, operating on a circular economic model that consciously reduces, reuses, and recycles resources. (Niinimäki, K., 2017). Labor laws and ethical production methods are prioritized, leading to slower brand growth and scaling aiming towards fair means.

Investment: It is important for any business to have good capital backing for its sustenance (Kotler, P.; Kartajaya, H.; Setiawan, I.) Financial backing through loans or investments is crucial for business sustainability, enabling swift decisions and transforming brands into profitable ventures.

Slow Fashion emphasizes sustainability and clean processes over profit, balancing environmental and financial goals, which results in fewer financial backers compared to fast fashion (Hines, T.; Bruce, M. 2017). As a result, the entire process of slow fashion becomes even slower as planning, managing and executing of decisions all need substantial financial resources.

(ii) Fashion as a Climate Topic

Over the past decade, global discussions on sustainable consumption have emphasized fashion's environmental impact, making sustainable fashion an expectation as industry players acknowledge the harm caused by fast fashion. (Khandual, A. and Pradhan, S., 2019).

In 2009, fashion became a climate topic at the Copenhagen summit, leading to the UN and Italy's Ministry of Environment launching Green Fashion Week in 2010. In 2014, the World Bank and Milan Fashion Week presented "X Ray Fashion," a virtual reality exhibit highlighting the fashion industry's environmental impact.

In 2018, Connect 4 Climate's "Sustainability Dialogues in the Design Industry" impacted discussions on fashion sustainability. Before the 2019 G7 summit, 32 fast fashion brands signed the "Fashion Pact," committing to 100% renewable energy for materials and shipping by 2030, with many aiming for sustainability by 2025 or 2030.

As consumers increasingly prioritize ethical shopping and conscious choices, brands are responding by launching conscious lines and sustainable fashion collections to address these demands. (Cataldi et al. 2010).

(iii) Climate Finance for Sustainable Development

The 1972 UN Conference on the Human Environment in Stockholm marked a key moment for global environmental cooperation, with India highlighting the link between poverty and environmental issues. The 1987 World Commission report introduced "sustainable development," defined as meeting current needs without compromising the ability of future generations to meet theirs.¹³ The 1992 UN Conference in Rio de Janeiro further underscored the need to prioritize development in developing countries while safeguarding the environment.

Sustainable development is based on three fundamental pillars: social, economic and environmental (Emas, R., 2015). Under sustainable green finance, climate finance is regarded as a subset of green finance carried out for adapting, as a significant financial resources to fulfill the adverse effects and reduce the impacts of a changing climate¹⁴.

The Kyoto Protocol aimed at reducing greenhouse gases rapidly threatening the climate, life on earth and the planet. Though it was adopted in December 1997, it was implemented in February 2005 due to its complex process¹⁵. The Cancun Agreement of 2010 clearly outlined the need to scale up finance, a topic that has been discussed since the Copenhagen Summit¹⁶. Established in 2010 under the Cancun agreements by 194 countries party to the UN Framework Convention on Climate Change, the Green Climate Fund is the largest climate fund, tasked with supporting developing countries in achieving their Nationally Determined Contributions for low emissions and climate resilience¹⁷. The agreement urged developed countries to take responsibility for creating most greenhouse gas emissions and provide financial assistance to developing countries. It allocated USD 30 billion for "fast start financing" from 2010-2012 and set a long-term goal of USD 100 billion annually from public and private sources¹⁸.

The Kyoto Protocol and Paris Agreement focus on reducing emissions and encouraging international cooperation, urging wealthier developed nations to support vulnerable countries and promote sustainable development. Despite nearly three decades, global financial cooperation has deteriorated, and stronger political will is urgently needed to achieve common goals for a sustainable future¹⁹.

Developed countries have focused climate finance on mitigation in high-emission nations, with over 91% of renewable energy investments in solar PV and onshore wind. Some funds also support forest sequestration, climate-smart agriculture, and disaster management. Developing countries, including Small Island Developing States (SIDS), Least Developed Countries (LDCs), and fragile states, received inadequate grants²⁰. Studies indicate significant gaps in measuring the impact and assessing the effectiveness of climate finance efforts (Bhandary, R.R., Gallagher, K.S. and Zhang, F., 2021).

Developing countries face voluntary, non-mandatory information requirements under the UNFCCC, resulting in limited capacity to compile data, while persistent calls for support to address deep-rooted economic inequalities remain unaddressed. gender²¹.

The pandemic has underscored the importance of collective action to tackle climate change, emphasizing green growth, climate-resilient infrastructure, and investment in Environmental, Social, and Governance initiatives²². Fashion, since the Paris Agreement, has always been a recurring subject at the corporate climate pledges meet but it has only been prioritised as a side event and thus been lost on the sidelines.

At COP 27 (2022), Mr. Bhupendra Yadav, Minister for Environment, Forest & Climate Change, showcased India's "Understanding of LiFE" concept under Prime Minister Narendra Modi's leadership, highlighting how environmental protection can transform policy-making.²³ In the same meeting Mr. Yadav described one of the impactful climate actions as "Sustainable Fashion."

(iv) Fashion brands/ Industry - a promising investment

Fashion has proven to be a commercial success, with Bernard Arnault, owner of Louis Vuitton Moët Hennessy, leading in sales despite the pandemic and frequently topping the Forbes list since 2019²⁴. Six billionaires from the fashion and allied industries, including François Pinault of Kering Luxury Group, Amancio Ortega of Zara, the Walton family of Walmart, and Françoise Bettencourt Meyers of L'Oréal, feature in the top thirty of Forbes' list, highlighting fashion brands as thriving and lucrative investments.

Fashion with right investment can fulfill itself as a commercial success and P3 (profit, people and planet) the triple bottom line in Sustainability (Niinimäki, K., 2013). Fashion being labour intensive can truly pioneer fair means which at present is pure verbatim in the fashion industry. The consumer pattern is globally encouraging as two thirds of buyers are willing to spend more on eco-friendly clothes according to a McKinsey survey²⁵. India's sustainable

manufacturing and market are steadily growing, even as the global Sustainable Fashion industry remains nascent.

Historically, the fashion industry has seen proven success, with entrepreneurs achieving significant profits and placements on the Forbes billionaire list. By incorporating ethical processes, the industry can enhance its positive impact on the planet, as fashion has traditionally aligned itself with nature and its processes.

(v) India and Sustainable Fashion

Sustainability is now crucial for fashion businesses (Shen 2014). Indian handlooms and allied crafts have been recognised as one of the key processes towards sustainability. (Shruti Sudha Mishra, A.K. Das Mohapatra (2020)

Indian handloom and handicrafts serve as the second-largest source of employment in rural India, following agriculture, encompassing handlooms, rugs, handicrafts, furniture, coir products, and recycled handmade paper. These products are uncontaminated, low in carbon impact, recyclable, and non-polluting.

The Tata Trusts, in collaboration with Harvard University's South Asia Institute, have announced that the Indian handicrafts and handloom sectors will focus on knowledge creation and capacity building for the private sector. This initiative highlights the growth potential of sustainable goods in these industries.

Today, 95% of the world's handlooms originate from India, where natural yarns are spun into fabrics through environmentally friendly processes. Additionally, India employs indigenous methods to create azo-free dyes. (Sandhu, A., 2020). These processes use less water than fast fashion, with residues effectively absorbed by water and land. Coir, one of India's oldest industries, alongside Sri Lanka, accounts for 90% of global production. The Indian paper industry, especially in rural areas, has embraced sustainability by using waste, soil, and village glue for handmade or recycled paper, with over 90% of wood sourced from agroforestry. This approach utilizes agro residue and recycled fiber, benefiting the environment and increasing farmers' income.

The products made by the above techniques are in ally with the natural ways of environment and therefore positive on Climate (Amritha, B. and Suresh, K., 2020.). Therefore, wastage from these collections is few and they do not get sent to the landfills.

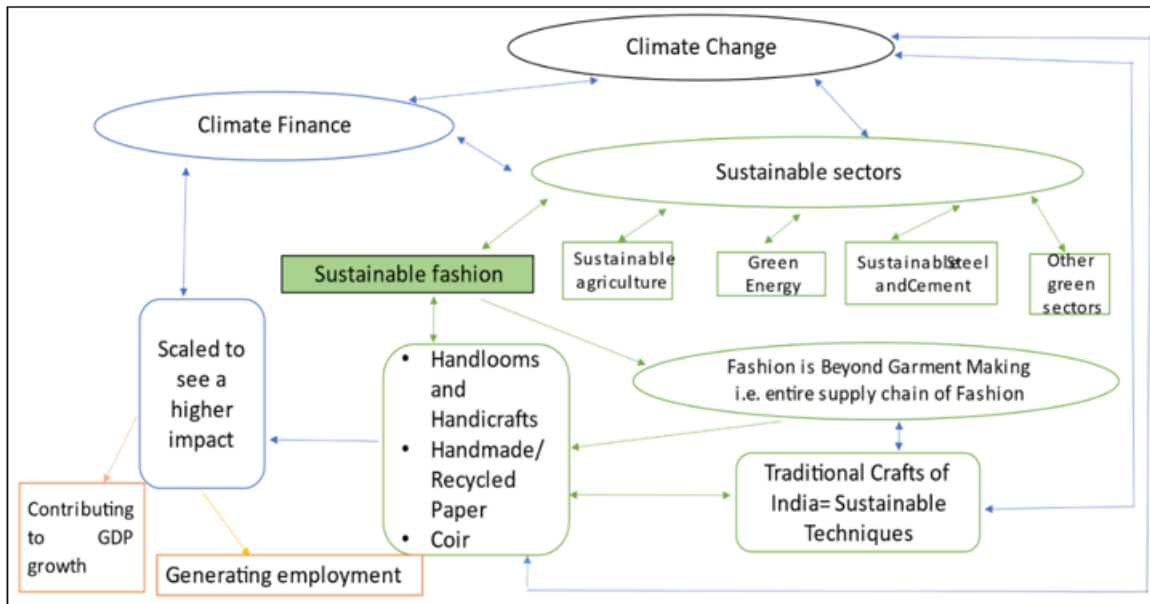
3. Objectives

Sustainable Fashion of India is impactful and can significantly help tackle climate change. Provision of Climate Finance can be advantageous for Sustainable Fashion to make the much-needed impact.

Fashion encompasses the entire supply chain, from seed to yarn, weaving, dyeing, construction, surface ornamentation, tagging, packaging, and selling—making it more than just about the garment. India's ancient craft techniques in garment making, handmade recycled paper, and coir disposal align with environmental sustainability. Reviving and scaling

up these sectors can significantly impact sustainability, affecting not only textiles but the entire supply chain, including packaging made from handmade or recycled paper and coir.

4. Conceptual Framework



This study will specifically explore the contribution of Climate Funds towards three sectors of sustainable fashion in India viz (i)handlooms and handicrafts (ii) handmade/ recycled paper and (iii) coir.

5. Methodology

India has the potential for promoting Sustainable Fashion. While there is a direct correlation between Sustainable Fashion and Climate Finance there are hardly any climate funds assigned towards Sustainable Fashion.

Sustainable Fashion has gained prominence in discussions on climate change at COP meetings, yet Indian Sustainable Fashion has not received significant financial attention. The National Adaptation Fund for Climate Change (NAFCC), established in August 2015, aims to support adaptation costs for states and Union Territories vulnerable to climate change impacts²⁶. These resources have mostly reached for livestock, livelihood and on for disaster relief. Recently, Norway’s Climate Investment Fund and KLP has invested on the renewable energy sector of India²⁷.

Whereas several sectors like EV, energy etc have received Climate Finance, existential sectors such as (i)handlooms and handicrafts(ii) handmade/recycled paper (iii) coir of Sustainable Fashion have been largely overlooked. The following analysis is to explore how Climate Finance is necessary for Sustainable Fashion in India. To support the above study, we look at

- 1) Analytical Study of Annual Reports – from Data shared by KVIC, Coir Board and MSME.
- 2) Sustainable Fashion Global Construct- To examine the operations and compare reports from various multilateral Sustainable Standard Organizations to assess the importance and necessity of Sustainability Standards.

- 3) Qualitative Descriptive Analysis via interview method to establish climate funds for Sustainable Fashion in India.

(I) Analytical Study of annual reports from KVIC, Coir Board and MSME

This study is supported by an analysis of published data from official organizations like KVIC, Coir Board, and MSME, which focus on handlooms, handicrafts, handmade/recycled paper, and coir.

KVIC -The Khadi and Village Industries Commission (KVIC) is a statutory body created under article 43 of the constitution which looks at promoting the rural industry. Government of India, Ministry of MSME formulated various schemes focused on employment generation, wage enhancements, social security and welfare together with productivity.

The Khadi and Gramudyog Vikas initiatives, including the Khadi Vikas Yojana and Gramudyog Vikas Yojana, support 17 million livelihoods in rural and semi-urban areas. From 2020 to 2022, the sector experienced a 36.39% growth in earnings, greatly aiding rural economic development.

	NI-MSME	KVIC	Coir Board
2018-19	-	81,906	4,153
2019-20	-	74,938	4,325
2020-21	-	81,221	7,145
2021-22	-	1,11,597	4,755
2022-23	-	10,420	1,473

Adapted from Source: <https://msme.gov.in/sites/default/files/MSMEANNUALREPORT2022-23ENGLISH.pdf>

The Handmade/Recycled Paper industry, under KVIC, uses recycled textile waste like cotton, silk, and jute, making it eco-friendly and a key player in wood-positive production²⁸. The thickness of paper usually represents the life of the product. Some special varieties of paper can withstand 100 years of durability²⁹. Paper industry is a classic example of recycling process circular economy and converts 100% waste products into usable products³⁰.

Handmade paper products like books, envelopes, bags, and decorative items are globally admired for their uniqueness and originality are predominantly produced by rural India. ³¹. The industry currently generates Rs. 16.5 crore worth of products generated by 5300 employees.

What is interesting to know that the global fashion industry has been rampant usage of paper and has seen a big increase after the 'sustainable' tag that has risen in the market³². Plastic was initially introduced as an alternative to paper for packaging due to concerns over rising deforestation linked to

paper production. ³³. Ironically, the push for increased paper usage aims to reduce plastic consumption, as post-use plastic contributes significantly to pollution³⁴. Few brands especially Indian home-grown brands have adopted the usage of recycled and handmade paper.

The production of handmade paper during in India 1989-90 was 44 around 7,000 tons valued Rs. 7.24 crores³⁵. India's current paper consumption is approximately 15 kg per person, significantly lower than the global average of 57 kg, with total consumption projected to reach 25 million tons by the end of the 2025 financial year.

While all brands across, from luxury to prêt and retail observes a high amount of paper usage, there is a huge demand that will arise from the recycled paper industry from India. The commercials can also be set to place with mass production that can generate future employment and with less investment compared with mainstream paper industry.



Brand name withheld. Picture representation to share the amount of use of tinted paper

Coir, one of India's oldest industries, is known for its unique strength and capabilities, primarily boosting the economies of coconut-producing states. India accounts for two-thirds of the world's coir fiber production.

The coir industry employs around 5.5 lakh people, primarily in rural areas, with a significant focus on women's employment. Its products include coir fiber yarn, mats, non-woven textiles, artifacts, and durable ropes.

The Government of India has launched schemes like Coir Vikas Yojana, Coir Industry Technology Scheme, and Mahila Coir Yojana. Export and Domestic Market Promotion Schemes aim to boost coir exports and domestic sales.

The ASPIRE scheme promotes innovation and entrepreneurship in rural industries, supporting technology and startups through business incubators across rural India. The SFURTI scheme, launched in 2005, focuses on the rejuvenation and marketing of traditional industries.

FLOW OF FUNDS : 2021-22 (Rs in crore)				
Sr. No.	Head	Revised Estimate (RE)	Fund Received From Ministry	Fund Disbursed by KVIC
A.	A. KHADI VIKAS YOJANA			
i.	MMDA (Khadi & Polyvastra)"	250.80	250.80	268.64
ii.	ISEC (Khadi & Polyvastra)**	23.59	23.59	34.02
iii.	Work-shed Scheme	13.00	11.75	8.43
iv.	Strengthening of Infrastructure of Existing Weak Khadi Institutions	2.52	2.52	3.08
v.	Assistance for Marketing Infrastructure	7.98	7.98	3.94
vi.	Marketing			13.98
vii.	Science & Technology (Khadi)			0.91
viii.	Setting up of Design House (Khadi)			
ix.	Promotional Grant (Khadi)	4.50	4.40	5.67
x.	Rozgar Yukt Gaon			
xi.	Quality Assurance (Khadi)			
xii.	Survey & Studies (Economic Research)			0.92
xiii.	Capacity Building - Training (Khadi)			0.85
	TOTAL: A (KVV)	302.39	301.04	340.44
B	GRAMODYOG VIKAS YOJANA			
B-1	GVY GRANT-DEDICATED VERTICLES			
i.	Handmade Paper, Leather & Plastic Industry (HPLPI)	0.20	0.20	1.10
	TOTAL: B-1 (GVY GRANT DEDICATED VERTICALS)	0.20	0.20	1.10
B-2	GVY GRANT - SUPPORTING			
i.	Information Technology	4.00	4.00	3.60
ii.	Publicity	10.66	9.86	7.94
iii.	Capacity Building - Training (V.I.)	11.04	11.04	13.66
iv.	State Board Cell			0.33
v.	GST			0.28
vi.	Commission Meeting			0.47
vii.	Audit			0.89
viii.	Estate & Services (Revenue)	6.78	6.78	5.19
ix.	Estate & Services (Capital)	2.75	2.26	2.07
x.	Economic Research			
xi.	Legal Fee			
	TOTAL B-2 (GVY GRANT SUPPORTING)	35.23	33.94	34.43
	TOTAL B (B-1 + B-2) (GRAMODYOG VIKAS YOJANA)	35.43	34.14	35.53

Adapted from Source: https://www.kvic.gov.in/kvicres/update/AR/Annual_Report_21-22.pdf

The Khadi industry has seen a positive growth with the intervention of policies since 2014³⁶. The Private equity participation has brought about less burden on banks to invest in handloom and handicraft sectors (Alaguraja, M. and Nedumaran, D.G., 2020). Increased retail participation and moderate use of electronic looms have boosted weaver production and fabric output, but addressing gaps in funding, skills, and organization is essential to enhance the sector's revenue (Mishra, S.S. and Mohapatra, A.D., 2020).

The Coir market on the other hand has improved its sales with its participation in trade fairs. The Coir market has seen a significance improvement in MSME industry.

Budgetary Support to the Coir Board from the GOI (Released on 13-01-2023)

Year	Allocation (RE) (Rs in crore)	Funds Released (Rs in crore)
2018-19	86.23	82.03
2019-20	75.70	73.00
2020-21	80.70	80.69
2021-22	80.00	79.81
2022-23	87.14	73.75*

Reproduced from source https://msme.gov.in/sites/default/files/MSMEANNUALREP_OR2022-23ENGLISH.pdf

Plastic hang tags in fashion are being replaced by bleached yarn cords, which still harm the environment, while packaging often relies on plastic tapes and cords. Coir, a zero-pollutant product, could address this issue as brands pursue sustainability. Recently, Akshata Murthy, former first lady of the UK, gained attention in various fashion magazines³⁷ for choosing to don sustainable fashion choices at both the G7³⁸ and G20³⁹ meetings and the closing speech of the former Prime Minister UK. With the increase in sustainable choices of powerful influencers, it can only bring in more scope to sustainable packaging where coir can be a part of sustainable choices in fashion.

To conclude, from (I) and above there is a huge potential to scale considering these three sectors. The government surely has given incentives; however, with the right flow of market access to tap the ethical fashion global market these sectors can rightfully enter the global demand for conscious goods/materials for sustainable fashion which can be observed from the following gaps.

The artisans in this sector are still many more numbered than on the registered list thus bringing a gap on the consolidated incentives for the weavers and potential output of work from all artisans (Pyne, A.S., 2017.). The growth of KVIC is still slower in comparison when compared with other sectors, one reason being KVIC being over regulated by government than private sectors (Alaguraja M, 2020). There is still a necessary map that needs to be established such that there is every personnel working with the KVIC and Coir Borad viz the artisans can be put in a roll or a docket system where every effort put across can be traced just like in private company(Khan F B, 2022) The exports of the material of handloom fabrics is much more than the ready garments made with handloom weaves. Garments made from handloom weave receive more revenue than handloom material (Garg, V.K., 2021).

(II) Sustainable Fashion Global Construct- will help in investigating the reports from few multilateral Sustainable Standard Organisations to determine the relevance and necessity of Sustainability Standards for the workings of an ethical fashion industry. To achieve this, it is necessary to understand how the rise of sustainability quotient came into the picture in fashion.

In the 1950s, the hippie movement rejected mass production, opting for locally grown, handmade, and pesticide-free products as a counterculture to consumerism and capitalism. In 1989, the World Fair Trade Organization was established to support marginalized communities by addressing poverty, gender inequality, and climate change. The Clean Clothes Campaign, founded in the Netherlands, focused on improving human rights in the global fashion and sportswear industries, becoming one of the first major alliances in this sector.

The following is an analysis of the increase in sustainable standards being accepted by the brands and consumers to make conscious choices. A study based on few popular standardising companies are as follows:

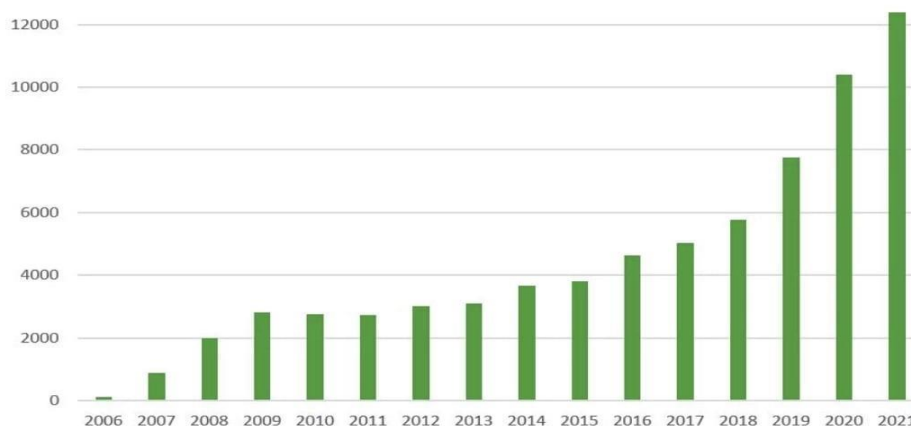
The Global Organic Textile Standard (GOTS) In 2002, an international standard for sustainable organic textiles was established, ensuring safe, organic yarns and regulating manufacturing, packaging, labeling, and distribution. The standard emphasizes reduced chemical use, ethical working conditions, and fair pay⁴⁰.

The GOTS Standard Revision Committee comprises of international experts in textile chemistry, environmental experts, representatives from industry, law (human rights), NGO's and civil society. GOTS has been closely monitoring and working across manufacturing units across the World and on the distribution of sales side across Europe.

After a World Bank study revealed that 15% of the global population has disabilities, GOTS partnered with UK charity Leonard Cheshire and other associations to promote inclusion in the readymade garment sector. A key project in Tirupur, Tamil Nadu, focused on improving access and training for people with disabilities.

The 2022-23 annual report shows GOTS expanded to 84 countries with a 10% increase in certifications. A conference in Africa focused on transparency, consumer campaigns, and scaling organic cotton. GOTS also introduced version 7.0, addressing climate change challenges through risk diligence and social responsibility⁴¹.

Implementation Status of GOTS Certified Facilities



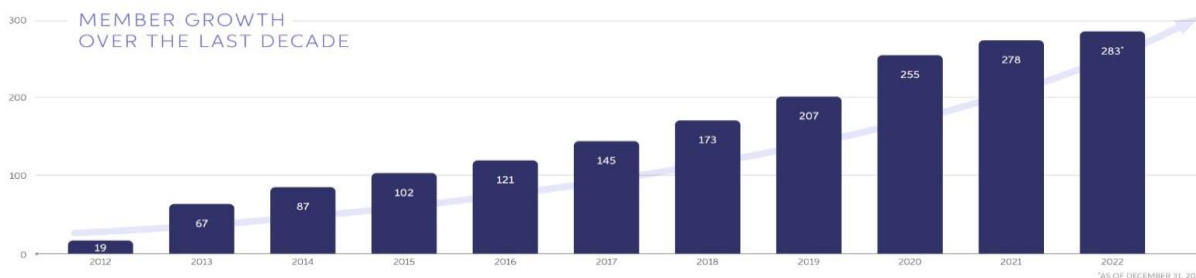
Source:https://global-standard.org/images/resource-library/documents/GOTS-Annualreports/GOTS_Annual_Report_22

In 2009, the **Sustainable Apparel Coalition (SAC)** was formed by Patagonia and Walmart, bringing together major clothing brand executives to create an index measuring environmental impact with the mission to minimize harm and promote positive effects on people and communities⁴².

In 2012, SAC came with the Higgs index as a statistical tool for all multistakeholders - retailers, brands, manufacturers and vendors to quantify the supply chain to impact environment to bring transparency to their processes⁴³. The part of the Higgs index is the Materials Sustainability Index that exists to measure environmental impacts.

As per the annual report 22-23, decarbonisation program to reduce carbon emission a modified version of science-based targets program to mitigate climate change and build climate resilience that committed by SAC members⁴⁴. This was

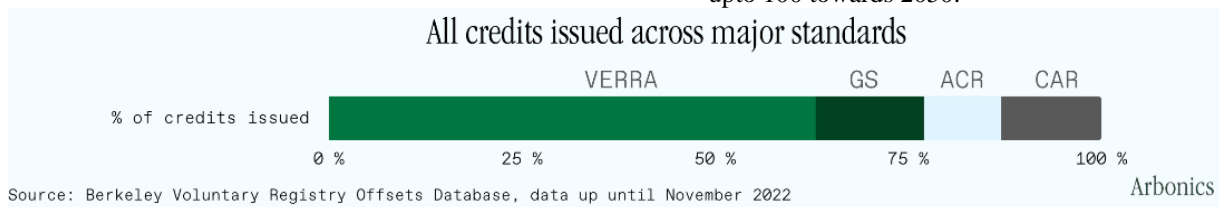
launched in 2023 with 13 experts across industry. SAC consists of 280 members generating over \$854 in combined revenue across 33 countries- the largest growth seen in the last decade indicating collective action.



SAC membership increase over the last decade; Source: <https://apparelcoalition.org/press-releases/sustainable-apparel-coalition-launches-2022-annual-report/>

Today SAC is working towards bringing a thorough influence in system by working towards public policy understanding and taking the responsibility of being catalyst of change in the fashion world. The only focus is to create and implement collective action.

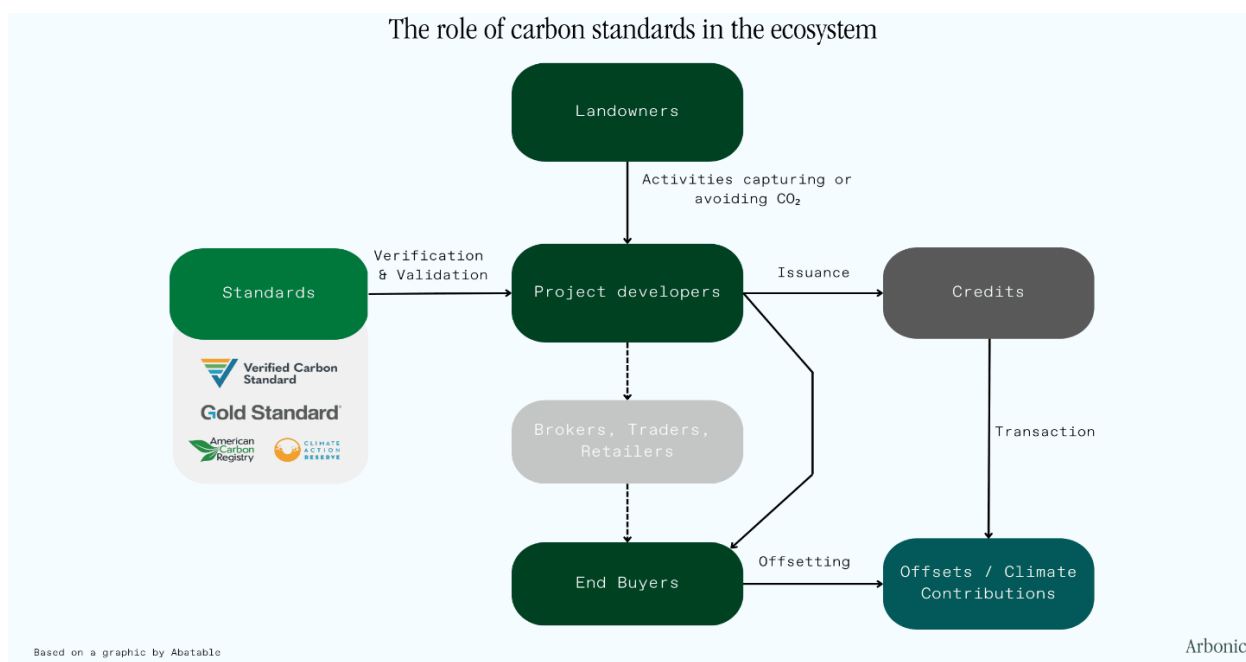
Verra and Gold Standards - Verra’s standard is called the VCS (Verified Carbon Standard) and it issues credits known as VCUs (Verified Carbon Units)⁴⁵. According to McKinsey reports, demand for carbon credits could be worth \$ 50 billion in 2030. There has already been an increase of 15 factors in demand of carbon credits towards 2030 and almost factor upto 100 towards 2050.



Source: Berkeley Voluntary Registry Offsets Database, data up until November 2022

Carbon credits are bought by a fashion companies equivalent to the emissions that is released via the process of manufacturing or while reaching the end consumer⁴⁶. Voluntary Carbon Market comes in form of Verra or Gold standards in form of Carbon Capture from companies generating extra profits by exploiting the environment.

Fashion brands are buying carbon credits equivalent to the emissions that are released via production or by selling the product. Once this is done the brands can claim their goods to be carbon neutral as the brand has taken the responsibility to invest in energy friendly industries like- wind, solar etc; the brands have cancelled or neutralised impact.



This is the newest way to make a fast fashion brand sustainable. There are lot of loopholes present in terms of math- how does the brand calculate the quantum of emissions it releases during the production and retail of the products. Secondly the complications of investing it ahead as it gets difficult without knowing the basic statistics of the emissions released in the processes of making and exhibiting the product in place.

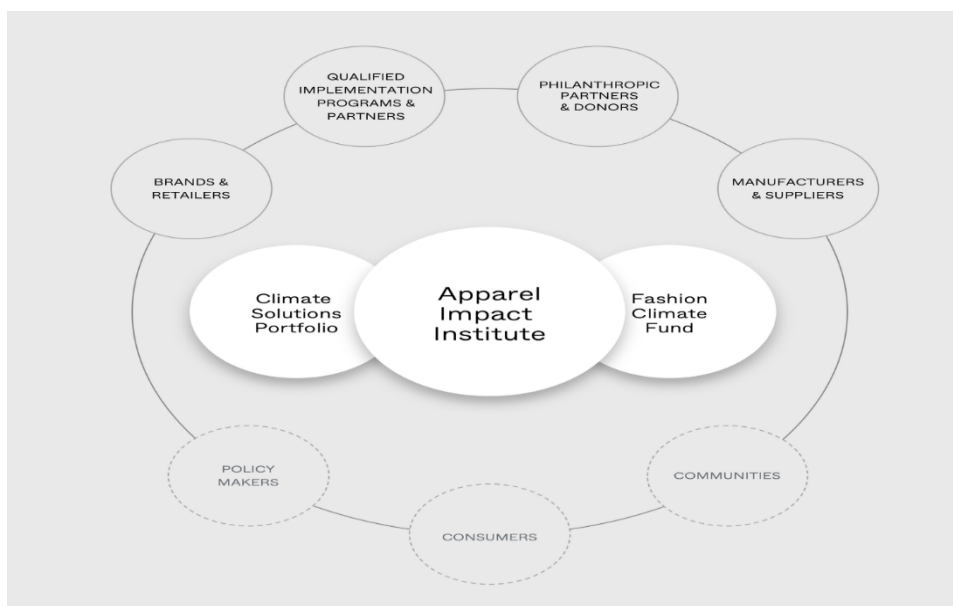
United Nations Environment Programme (UNEP) The UNEP helps countries reduce carbon footprints and enhance economic efficiency through stronger environmental governance, ecosystem protection, and data-driven policies. In collaboration with 193 UN member states, it promotes harmony in nature aligned with SDG goals for the fashion sector. The UNFCCC introduced the Fashion Charter to guide the fashion industry towards achieving net zero emissions by 2050, aiming to limit global warming to below 1.5°C⁴⁷.

The Fashion Charter, launched at COP24 in 2018 and renewed at COP26 in 2021, connects diverse stakeholders across the fashion industry to address environmental impacts throughout the value chain. It involves manufacturers, vendors, textile producers, and brands to reduce pollutants. In June 2023, in collaboration with UNEP, a Sustainable Fashion Communication Playbook was introduced to promote responsible consumption and tackle misinformation and greenwashing, which undermine sustainability efforts through misleading marketing and advertising claims. Infact,

one of the noteworthy revelations to quote here, “A 2020 study by the European Commission found 53.3% of environmental claims communicated in the EU at large were vague, misleading or unfounded (European Commission 2022). Meanwhile, a fashion specific report finds 60% of sustainability claims by European fashion giants are “unsubstantiated” and “misleading”⁴⁸ (Changing Markets Foundation 2021) is shocking.

Sustainable certification companies have made progress for their balance sheets but have had limited impact on brands. According to UNEP, the authenticity of sustainable brands is questionable. However, if certification brands provided transparency on what is covered, authenticated, and excluded (yarns, dyes, processes, packaging), it would empower consumers to make informed choices.

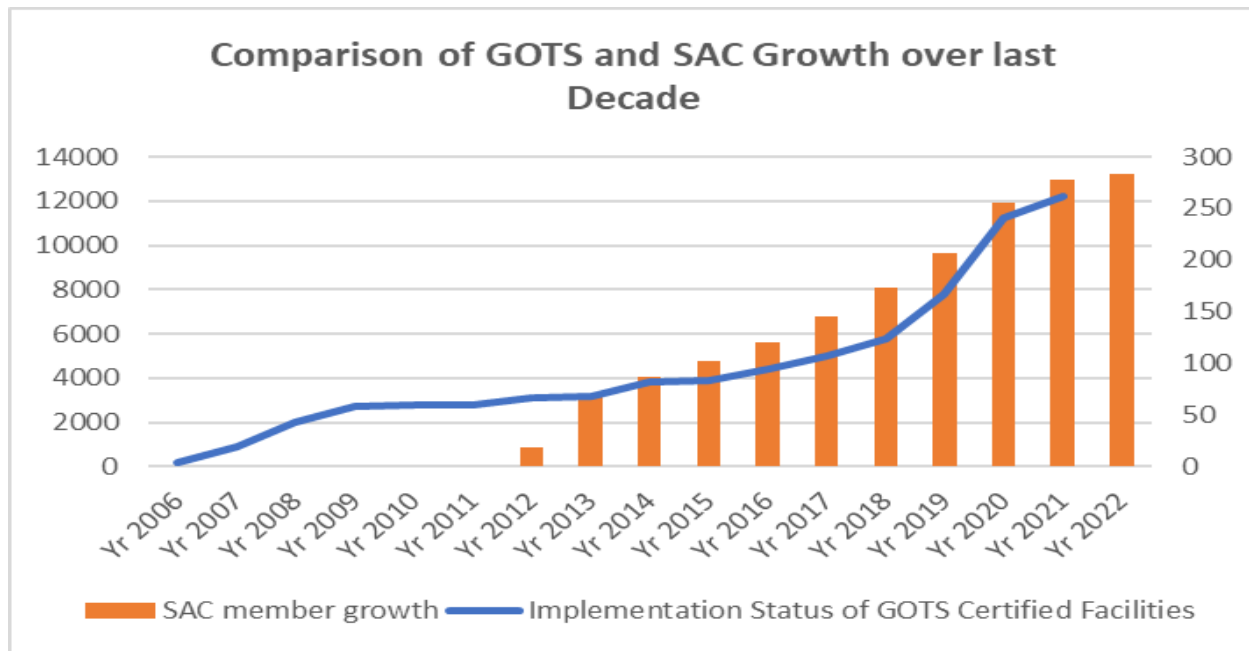
There have been industry sponsored funds like American Impact Institute⁴⁹, Fashion Climate Funds⁵⁰, PVH Foundation⁵¹ and the Country Road Climate Fund⁵² that have come together to decarbonise the industry. Funds are accessible to brands with Sustainable Certification focused on reducing carbon emissions, mostly benefiting those based in the home countries of climate fund organizations. While many Indian manufacturers and exporters hold SAC or GOTS certifications, few independent home brands have them owing to the added expense.



Source: Fashion Climate Fund website

Further discussion over (II) the sustainability indexes is here to stay. As awareness grows among climate institutions, multilateral organizations, and consumers, sustainability indexes are essential for demonstrating the authenticity of fashion products. Popular sustainability organizations like

GOTS and SAC have seen a significant increase in fashion brands seeking membership. A graph illustrates the rise of sustainability indexes over sixteen years, showing a gradual increase, particularly notable over the past decade.



Graph derived by self is the comparative analysis of the growth from SAC and GOTS membership

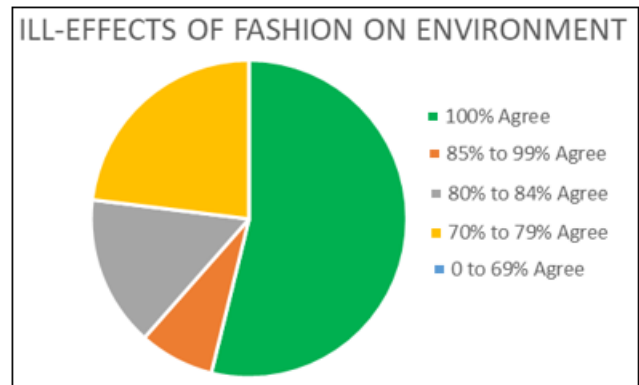
(III) To understand the backdrop better, a **qualitative research** was conducted by collecting descriptive data via interview method from a detailed questionnaire to a wide variety of identified stakeholders from entrepreneurs, senior officials with fashion brands, academicians, professionals, and experts working with climate change, sustainability standards and from handicrafts, coir, and recycled paper.

The World Bank’s Board of Executive Directors approved 1.5 billion USD to finance and accelerate low carbon energy for India’s growth and development⁵³. The sectors include developing and scaling renewable energy, green hydrogen. As per Dr (Captain) S N Mishra, ‘Out of promised 100 billion USD finance per year from developed countries only 16 billion USD has come to developing countries and India received only one billion so far’.

All Stakeholders- The questionnaire sought from all stakeholders an assessment of sustainability in fast fashion and the potential of Sustainable Fashion from India. To highlight the noteworthy responses that are insightful between the objectives and deriving at the results, from the overall discussion, current work happening in the sustainable field of fashion here is the key findings.

From all stakeholders

1) The environmental damage caused by fast fashion has been widely acknowledged, with the industry responsible for 10% of global greenhouse gas emissions. Despite being a major employment generator, fast fashion suffers from significant ethical gaps. Its pollution impacts include microplastics and toxic dyes contaminating water, soil degradation from waste fabrics, and substantial carbon emissions.



- 2) Few brands can genuinely be labeled as ‘sustainable,’ as stakeholders point out that many popular brands, despite having sustainability certifications, still lack essential details defining true sustainability. Key factors include the sourcing of materials, the production processes considering environmental and social impacts, and the product’s market presentation. Ideally, products should follow a circular model—maximizing wear and enabling refurbishment or recycling. While very few brands meet these criteria, several homegrown brands in India come close to being sustainable. It’s also essential to note that no man-made product can be deemed 100% sustainable.
- 3) Stakeholders emphasize that our understanding of a brand’s sustainability relies heavily on its own messaging, primarily conveyed through promotional campaigns. Unlike the food industry, the fashion sector lacks a requirement to disclose detailed information about every component of its products. Implementing regulations that mandate the disclosure of not only the ingredients and materials but also the entire production process would foster complete transparency within the fashion industry.
- 4) There are quite a lot of sustainable certification companies that have mushroomed in recent years, namely the certifications as shared by the stakeholders.

However, there are no standards yet that cover the entire breadth of what is stated in point iii. All current certifications cover part of what is stated above, so these partial standards need to be declared with nuance and disclaimers. Cradle2Cradle certification claims to be and have a start to end sustainable approach, however there are other shared claims.⁵⁴

In India, many homegrown brands prioritize sustainability by using biodegradable components from yarn to finished products, producing in smaller batches, and upholding human rights within the slow fashion model. However, they often refrain from pursuing certifications due to their significant costs, which cannot be passed on to consumers. Meanwhile, popular fast fashion brands with certifications face criticism regarding their sustainability claims, as highlighted in the UNEP playbook; yet, the sustainability standards of the handloom sector, coir, and recycled paper receive little attention, despite numerous published articles on the subject.

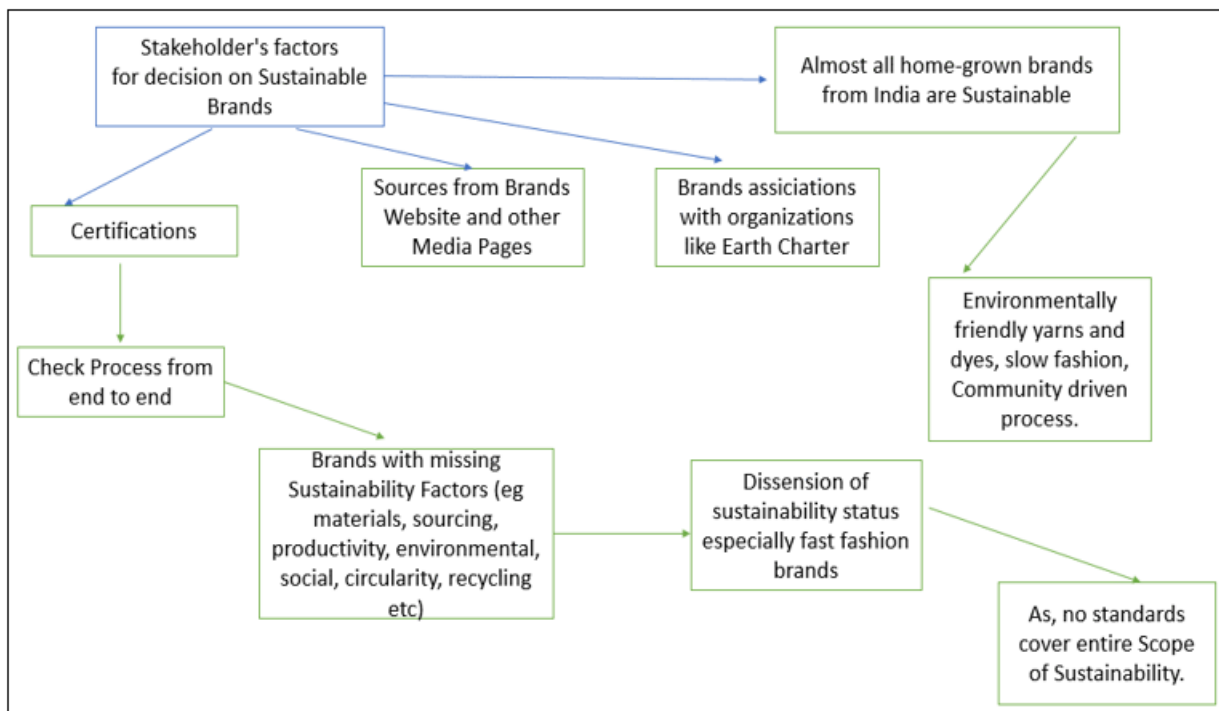
- 5) All stakeholders emphasize the necessity of sustainable certifications as consumers increasingly recognize the negative impact of fashion and choose to consume less. This segment of conscious consumers is expected to grow over time, highlighting the urgent need for certifications that clearly define their criteria rather than

merely labeling products as sustainable. Certifications must specify details such as the treatment of the labor force, the use of recycled polyester, disposal methods, and the incorporation of secondhand components, ensuring transparency on product tags.

- 6) Brand is sustainable as shared in the above point to share the specific sector that it has covered. For example, a particular certification can come with a declaration of the yarn and dyes, but the manufacturing process is not the be this certification's strength as it can claim.

A good certification should be transparent, credibly sharing disclaimers. Sudhir suggested introducing a smart card on tags (made sustainably) or accessible during purchase. Additionally, sustainable companies should disclose how their certification is conducted, highlighting included and excluded factors. Another key point is whether UNFCCC could establish essential certification criteria for respected certifications like SAC, GOTS, Better Cotton, and Gold Verra to follow, ensuring consistency and clarity in sustainability indexes.

Visual matrix of Stakeholders decision for choosing sustainable brands summary



- 7) Packaging, often overshadowed by garment production, has gained attention in recent years. Just like garments, packaging can also share its complete life cycle, especially after use. The proposal is to incorporate handmade or recycled paper, which is 100% recycled and upcycled and can be further recycled. Some respondents even suggested using cloth for premium or luxury brands.
 - a) Having worked in both the sustainable and retail fashion sectors for 15 years, I've observed that handlooms, coir, and handmade paper sectors use far less energy than fast fashion. For instance, the Bhansko unit in Rajasthan uses significantly less

electricity compared to textile mills, and even units at Khorpad with electronic motors are less energy-intensive. Coir is nearly a zero-waste industry, and recycled paper, made largely from waste, is also sustainable. However, the lack of certifications or indexes for these industries leaves us using terms like "almost" and "mostly" to reflect the ambiguity.

- b) As respondents have shared, there is indeed a lack of funds for this sector. Community artisans, even those from weaving lineages, rarely receive direct monetary support. While there is information about exhibitions and trade fairs, these often lack real

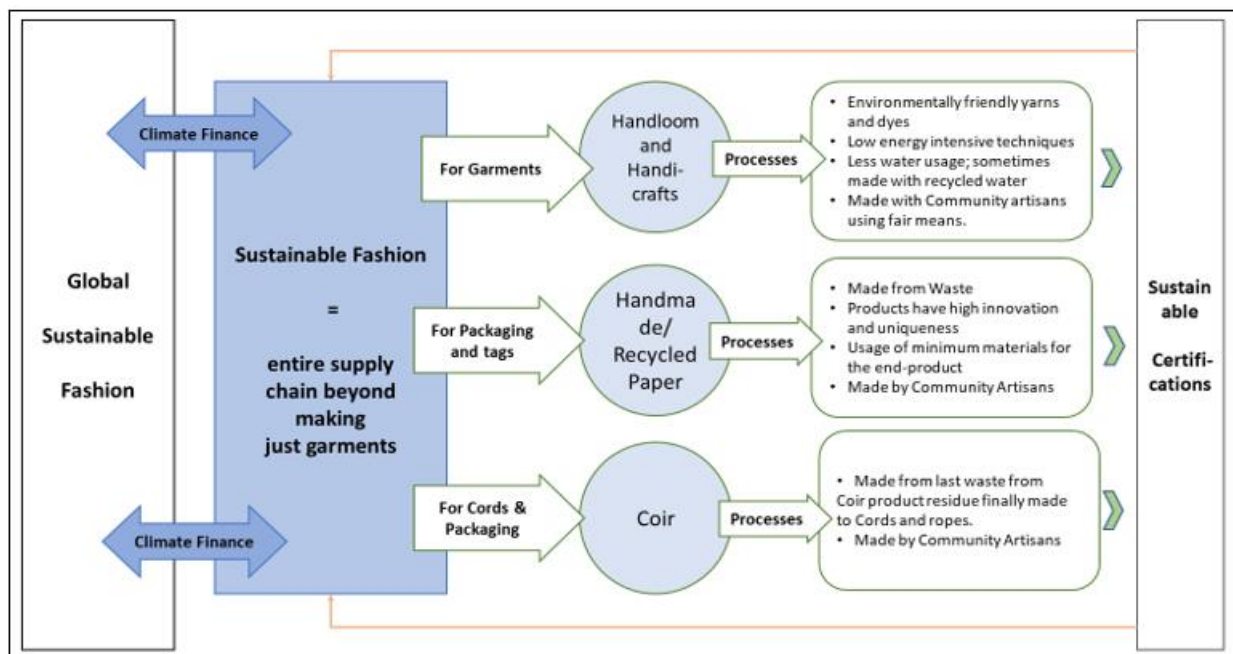
incentives, and the costs of international trade fairs are burdensome for artisans. Additionally, government-appointed agents are often not transparent, leading to a disconnect between incentives and the artisans who need them most.

The other factor which is difficult is to scale as the mentioned sectors are extremely unorganised. The fact remains, the ability to measure the huge potential of this sector having great global demand is yet to be worked ahead. If there is well researched strategy that can come up with a value chain comprising of these three sectors it can make a huge impact.

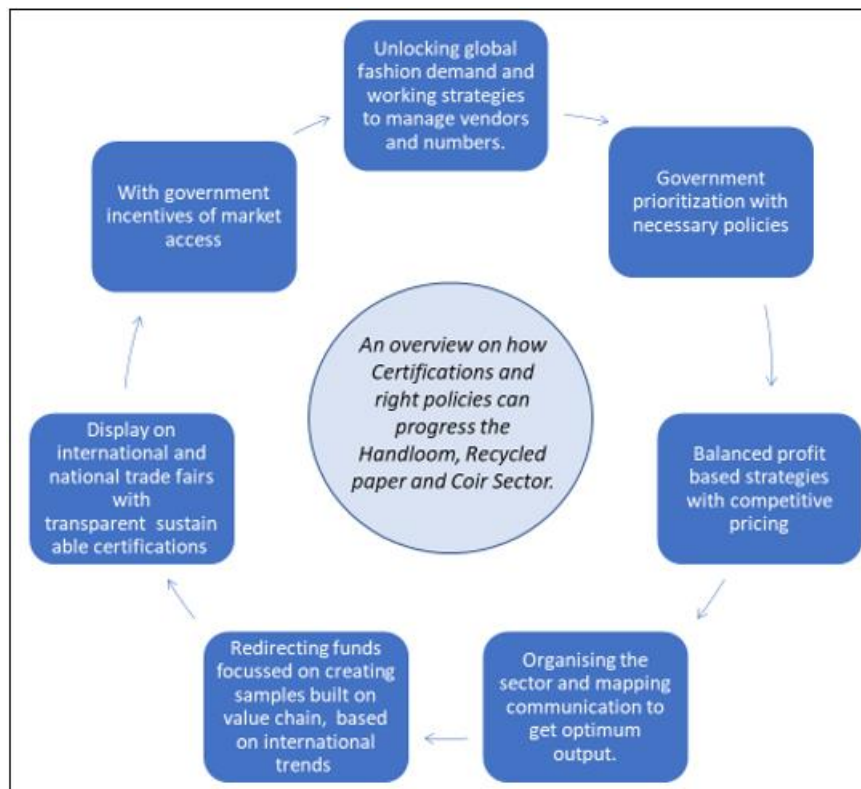
In conclusion, two key factors need attention: first, developing a sustainability index to assess the sustainability quotient across these sectors. Second, since these sectors are not organized for profitable income generation, specialists and consultants with handloom experience should be engaged to develop profitable strategies. Additionally, competitive pricing should be established to ensure affordability across various classes. Most importantly, the Government of India must prioritize this sector through promotions, sustainability reports, and emphasizing the cultural economy to meet the growing demand for ethical markets.

- 8) Many new sectors like Solar, Electrical vehicles and Wind energy have received climate funds; this surely has helped to reduce carbon emissions. On the other hand, these three sectors do fulfill the Sustainable Development Goals 1, 7, 8, 10, 12 and 13 to a great extent. These sectors coming together will positively bring an enormous impact on climate when generated with a balanced volume of circulation of work and money.
- 9) The fashion industry's effort to generate funds for slow fashion may not benefit Sustainable Fashion in India, as most funding brands are based outside the country. Consequently, the likelihood of funds reaching the relevant sectors is low, despite documentation showing the direct climate impact of Indian Sustainable Fashion. Once measurable impacts are established through sustainable standards, funding can be allocated proportionately based on these impacts.
- 10) There is an urgent need for proactive policies toward these sectors, driven by climate change, social equity, and significant economic growth potential. Therefore, the Government of India should collaborate with all stakeholders to develop a logical and systematic strategy that yields positive results.

Visual matrix of stakeholder's summary



An overview on how right policies can make an overall difference.



Academicians

(i, a) There may have been enough study and research done on the ill effects of fast fashion; however, the kind of impact that this study deserves to have reached is clearly not accomplished. As Prof. Beehner shares that in his academic experience he hasn't come across any research material which surely shows that something is amiss. (i,b) Either the articles need to be in wider circulation, or many researchers need to be encouraged to look at the same such that to build awareness

Investors

- 1) While investors know about the negative impacts of fast fashion
- 2) And being aware of the positive effects of investing on sustainable fashion – fulfilling the 3 P's of sustainability
- 3) They had yet not invested in sustainable fashion
- 4) Every investor today is looking for large returns and sustainable fashion doesn't churn much as compared to fast fashion.

Recently RBI floated green deposits to banks and NBFC's where they have to make sure that some amount of money goes to causes that are aligned with the SDG's. This move is made so that there is transparency and money to go to intended causes meant to mobilize resources and direct them through sustainable initiatives. This has been announced early June 2023.

Designers/ Founders of Sustainable Fashion brands

- 1) Scaling up unfortunately requires funds, unfortunately it's always pitted with fast fashion and one may think that you need more than ever to scale funds as the awareness of ill effects of fast fashion needs to be shared as much.
- 2) Until recently there have been no policies / incentives or subsidies like the sectors of solar, EV or wind energy have received. The fact that slow fashion helps the

climate must be more vocal from a top-down (Governments, celebrities, influencers) approach.

- 3) Climate funds can rightfully make an impact on Sustainable Fashion.

Climate Experts

- 1) Funds in any form are welcome to any sector though rightfully these sectors of handlooms, coir and handmade paper are largely sustainable and more growth from these sectors will positively affect the climate. More growth in the sector is more positive for the climate.
- 2) As mentioned earlier, industry of fast fashion may easily raise funds; but these funds may not be used for Indian sustainable fashion as most of the rich fast fashion brands are not based out of India and these funds may be used for much needed decarbonizing which are most of the brands within the network/framework
- 3) There must be a constructive strategy of why firstly these sectors are sustainable backed by enough research secondly to acknowledge the number of SDG's it can associate with and thirdly to share a comprehensive idea to show the positive impact on climate with the growth of these sectors. This surely can ease the flow of funds via this sector.

Sustainability Professionals

- 1) Sustainability standards are extremely important; this is only certification that can share that the product is sustainable but at the same time authenticity of an existing sustainable certification authorization company is questionable as till date. Maybe, we all can accept the fact that these certifications are partially sustainable and companies can bring this transparency to the end user. This information and authentic partial certification will also help.
- 2) Setting sustainability standards as shared by the respondents can be based on set criteria based on GHG

emissions negatively impacting on Air Water and land. Other necessities are respecting labour laws and positive impacts on biodiversity.

- 3) As shared by the respondents who are professionals from the field that bringing in transparency of what they certify can bring in credibility on the same
- 4) I agree with the opinions as shared with the respondents on transparency of the certifications questioned. As Vidhura mentioned the certification standards that follow 'iseal' are highly recommended.
- 5) The prerequisite for the sustainability standardizing organisations is ethics. Without ethics being put as a priority for these organisations the commercials can only follow in the long run otherwise it will only be a short-term proposition. The goal of ethics is the prerogative and company should solely focus on long term vision and goals.

6. Research Limitations

- Given that this is a niche, relatively new area the sample size was inevitably small as there were few respondents with the desired expertise and background to provide the relevant information to accomplish the third methodology.
- As the working force of these sectors are mostly employed in grassroots at rural and semi urban areas and are largely unorganised therefore not many of their opinions could be included for the records.

7. Results and Findings

Final Observations and considerations to create a policy that justifies triple bottom of circular economy. Sustainability practices are understood as those that balance economic, social and environmental considerations (UNEP 2023)

- 1) Sustainability standards are very clearly required for (a) handloom and handicrafts (b) Recycled and Handmade Paper (c) Coir. Once the standards are earmarked, the value of the products from the sectors will increase significantly.
- 2) Sustainability standards must clearly clarify if the following factors are covered or not (a) High Carbon Emissions, (b) Waste Generation, (c) Chemical Usage, (d) Water Conservation, (e) Biodiversity and (f) Labour Laws. This should apply throughout the supply chain.
- 3) Develop a network of artisans or directly with the producer companies that are directly working and dedicated with the sectors and have direct communication. This niche community to solely work towards Indian Sustainable fashion and have this community working directly with brands. There should always be direct communication with the parties directly and not involving agents. If consultants and designers assigned are working with this value chain, they need to be a part of the ongoing process.
- 4) The products achieved must follow the protocol set from the yarns used, dyes incorporated, making, waste claims, packaging, and tags with absolute information of the set sustainability indexes incorporated.
- 5) The usual practice of fast fashion is to make innumerable volumes in terms of overproduction and thus lower the cost of product. "A sustainable textile industry [of which

fashion makes up the largest portion] is one that is resource-efficient and renewable resources-based, producing non-toxic, high quality and affordable clothing services and products, while providing safe and secure livelihoods" (UNEP 2020b). A considerable scale can be achieved without overproduction that can create an affordable price by the said sectors.

- 6) These sectors fulfill the goals of SDGs 1, 5 and 8 (Poverty Alleviation, Gender Equality and Decent Work and Economic Growth), SDG 6 (Clean Water and Sanitation), SDG 12 (Sustainable Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life below Water) and SDG 15 (Life on Land).
- 7) With small batches/consignments made one can estimate the carbon captures and this can provide good statistical data of the kind of impact this sector can make; Climate funds are duly deserving for this sector.
- 8) Other factors
 - a) Cultural Economy- This sector's work is based on values, integrity and norms of the economy. India is already showing the world what 'Vasudaiva Kutumbhakam' is. Growth of these sectors not only will bring major economic growth in this sector but will be exemplary to the slogan what India is bringing up. This economic growth will also be exemplary for Cultural Economy.
 - b) India has immense potential to do the same with support from the government sector and cutting off middlemen to become a dominant player in Global Sustainable fashion. With the current Handloom Park being initiated by various states; with the given network organised can boost exports of sustainable garments. This growth can see a desired progress in rural and peri-urban areas.
 - c) India will soon be the third economic power in the World. With the aim of reducing income inequality in India investment in these sectors will be beneficial. Being the largest society of the world will experience income inequality to another level than it is at present owing to the increased unemployment rate which is at 8.4%⁵⁵. Unemployment needs to go down if we don't want India's 10% owing 80% of India's wealth. With these sectors booming surely can see an improvement an improvement and balance in economy

8. Conclusion

While climate funds are limited, India has largely been overlooked in terms of being able to access them for Sustainable Fashion. Moreover, given the huge potential of Handloom and Handicraft, Coir and Recycled/ Handmade Paper sectors, once scaled up can help mitigate climate change. Such funds even if modest can catalyse these growing yet untapped sectors and transform Sustainable Fashion in India contributing substantially towards a fast-growing global Sustainable Fashion. The growth of these three sectors also will lead to a significant increase in employment and boost the rural economy of India. The enhanced production of Sustainable Fashion in India will happen in tandem with the rise of the middle-income group segment in India, (which is estimated to increase to 715 million by 2030 from the current 500 million) bringing a new wave of purchasing power across to these three sectors.

The emphasis on Sustainable Fashion by India can be a good example to the world, versus the consumer driven society practiced by the West where products are bought for the lower price. and trashed even if it is not used. This change in buying behaviour and awareness can contribute to bringing about the visionary 'LiFE' style announced by Prime Minister Narendra Modi.

Investment of domestic sources in Sustainable Fashion in India even, if limited international climate funds are not available, would parallel the rising of Sustainable Fashion in India and thus contribute to the Indian economy and world at large.

9. Future Scope

This paper draws upon insights from relevant stakeholders and shows that Climate Funds are necessary for the growth of Sustainable Fashion in India. Moving ahead, it will be worth quantifying and examining the impact of usage of such funds on restraining GHG emissions, growth in rural economy and employment generation. Such change can be critical to see

that the fashion industry in India especially as regards to the three identified sectors operate in a sustainable manner.

It is hoped that Climate Finance would be assigned to the workings of sustainable fashion sector in India. Most stakeholders have suggested a minimum of 10% or more of Climate Finance be made available for this purpose. This would require home grown brands working in Sustainable Fashion putting forward 'Request for Proposals' to various climate funding bodies. With strengthening of this trend can lead to better livelihoods across these identified sectors. Such a paper could also provide further scope for analysis whether the fund allocation is leading to better returns on investment or if any revision may be needed.

As most Indians live in rural areas, such a flow of fund can open up vista of opportunities and thus significantly impact in contributing to the economy. Lastly, bearing in mind India's desire to achieve 45% GHG emission reduction by 2030 and its declaration of net zero emissions target by 2070, the interjection of these funds will speed up the reduction in GHG emission besides contributing to building a circular ecosystem towards and helping India move towards a greener economy.



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