Global Expert Mission
Sustainable Fashion
in India

Contact
Siân Summerton
Programme Lead - Global Expert Missions
sian.summerton@ktn-uk.org
07732 692184

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Welcome

Innovate UK launched the Global Expert Mission (GEM) programme in October 2017 to help businesses become truly global enterprises through strategic international innovation collaboration. Delivered by KTN, in partnership with the UK Science and Innovation Network, the Department for International Trade and UK Research and Innovation's overseas offices, the Expert Missions provide an expert-led evidence base to strengthen Innovate UK's global investment strategy: how and where it should invest in creating UK business opportunities in partnerships with key economies.

Each mission selects representatives from the UK's business, policy, and research community, with objectives to:

1. Inform UK businesses and government
The findings and opinions of experts on the topic of the mission are made available to UK businesses and the government after the overseas visit. These inform UK businesses about opportunities for innovation in the country and the UK Government to help UK businesses make the most of those opportunities.

2. Build international collaborations
The expert insights will help inform how Innovate UK can best help UK businesses find and exploit the opportunities for innovation partnerships. The mission creates connections with key organisations and people that will deepen and widen the collaboration with the partner country to benefit UK business.

3. Showcase and share UK capabilities
During the overseas visit, the delegation of experts will use the opportunity to promote and showcase the UK's innovation strengths.

The India Sustainable Fashion mission took place during a period of COVID-19 travel restrictions, and therefore UK delegates met virtually with Indian fashion industry representatives to meet the following aim:

Assess the potential to build collaborations between Britain and India on innovations that will address environmental challenges, as well as socio-economically benefit both nations.

Principal areas of focus for the mission included:

1. **Digitisation to address sustainability:** Automation and data analytics have enabled a new breed of start-ups to achieve agile made-to-order production, reduce overstock and make short, small-batch production cycles. Fashion is seeing the start of a seismic shift where products are "pulled" into the market based on actual demand rather than "pushed" based on best guesses and forecasts.

2. **Sustainability supply chain and end-of-life solutions:** India is now witnessing a materials revolution, with the introduction of alternative materials and sustainable substitutions adoption at scale, such as hemp and banana fibres. The mission touched on new and disruptive initiatives that businesses in both countries are adopting to reduce landfill waste, including upcycling, textile recycling programmes, and repurposing raw materials.

3. Inspiration from tradition: Fashion's future is often created by reinventing the past and finding fresh inspiration in tradition. In India, a renewed appreciation of the centuries-old, artisanal craft Kantha offers a new perspective on a more modern approach to sustainability. The mission showcased more traditional approaches already employed by small and medium-sized enterprises, local artisans, and social enterprises to produce high-quality, sustainable products whilst supporting empowerment.

4. Policy: Mainstreaming the issue of sustainable fashion is the first, and possibly, the toughest, task of policymaking. If there are clear benefits, we will start holding dialogues on this issue to better understand the contours of sustainable fashion.

The India virtual mission was the third sustainable fashion Global Expert Mission that KTN, Innovate UK and the British Fashion Council have organised. The first was to New York City[1] in November 2019, and the second was to Paris in February 2020. The India virtual mission was comprised of a public showcase of Indian sustainable fashion companies and UK Government-business activities to support sustainable fashion, followed by three closed-door roundtable sessions with UK and Indian fashion delegates to discuss circularity, digital technologies and government policy and partnership-building.

A full list of the UK and Indian participating organisations is included in Annex 1.

[1] https://admin.ktn-uk.co.uk/app/uploads/2020/01/2020-US-Sustainable-Innovation-in-Fashion-Expert-Mission-.pdf

Executive Summary

The UK, in partnership with Italy, will be hosting the United Nations Climate Change Conference (COP26) from 31 October to 12 November 2021 in Glasgow. At COP26, governments will come together to agree on the climate actions to be taken to keep warming no higher than 1.5^{o}C as set in the Paris Agreement. An aim of the programming at COP26 is to recognise and celebrate international research and collaboration as science, research, and innovation offers climate solutions. With the UK being a global fashion hub, there is an opportunity to use the COP26 Summit as a platform to further galvanise the fashion industry to net-zero, especially as the industry accounts for 4% of total global emissions (2.1 billion metric tonnes CO_2) and needs to reduce emissions by 1.1 billion metric tonnes CO_2 by 2030 to be on course for the 1.5^{o}C commitment[2].

KTN, in partnership with Innovate UK and the British Fashion Council (BFC), has run three Global Expert Missions (GEMs) exploring the sustainable fashion innovation landscape in New York, Paris and India. The most recent mission to India aimed to gather learning about sustainable fashion businesses, innovations and the policy landscape for supporting the transition to a sustainable fashion system, and identify opportunities for deepening and broadening collaboration between the UK and India to accelerate this transition. Given that India is a key manufacturing location for British fashion brands and a renowned technology hub, the mission focused on how circularity and digitalisation can be developed to make the fashion industry more sustainable.

Key Observations

As one of the world's largest textile and garment markets, valued at over US$ 100 billion, with three-quarters from domestic consumers and a quarter from exports,[3,4] India has a pivotal role to play if the global fashion industry is to achieve net-zero. India is a leading production base for many British brands, and a growing number are opening a retail presence to access the 600+ million Indian consumer market.[5] Furthermore, Indian brands want to access the UK consumer market (which has the highest per capita spend on fashion in Europe) and access the UK's global platform through designers presented at London Fashion Week.

Like the UK, the Indian fashion industry is dominated by a linear growth production model, where virgin materials are used to produce garments, which go to landfill or are incinerated at the end of life. This has given rise to overproduction and consumption of low-cost apparel and textiles that do not reflect the environmental and social costs. However, there is growing consumer and industry concern about the negative impact of this model and the possibility that fashion could adhere to stronger sustainability principles.

There is a strong indication of an evolving community of sustainable fashion businesses, both small and established, navigating a complex system. However, businesses need support and financial resources to overcome the hurdles faced in mainstream adaptation and scaling. The primary driver for fashion innovation has been efficiency. To maintain and grow India's competitive edge as a material sourcing and production hub, sustainability is often a secondary benefit rather than a primary intention. The Indian Government's textile and industrial apparel strategy prioritises improvement in production processes and the skills development of the workforce. Demand for the adoption of sustainability practices by Indian suppliers is primarily driven by international brands rather than domestic policies. However, there is a growing recognition that Indian fashion companies need to deal with Indian consumer-generated garment waste, which currently results in landfill waste and excess deadstock fabric. There are companies realising untapped opportunities to deal with the waste issues.

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[2] https://www.mckinsey.com/industries/retail/our-insights/fashion-on-climate
[3] https://aepcindia.com/system/files/Annual%20T%20and%20A%20Industry%20Report-2021.pdf
[4] https://wits.worldbank.org/CountryProfile/en/Country/IND/Year/2019/TradeFlow/EXPIMP/Partner/all/Product/50-63_TextCloth
[5] https://oecd-development-matters.org/2019/05/07/look-east-instead-of-west-for-the-future-global-middle-class/

Conclusions

There appears to be enthusiasm, receptiveness and recognition of the value in creating programmes and mechanisms for activating collaboration between the UK and Indian fashion industry in support of the sustainable fashion agenda.

Areas of mutual benefit include:
- Peer-sharing learnings and innovations of the processes, business models, supply chains and technologies that, if adopted and scaled, could accelerate the development of a sustainable fashion system.
- Running joint multi-disciplinary research programmes that explore sustainable transitions, for example, in the development of circular fashion models.
- Providing public and private financing, investment and partnerships to scale sustainable fashion innovations.
- Aligning sustainability methodology, standards and reporting frameworks and schemes that are both mandated and voluntary.
- Improving data and evidence to enable informed decision making by the supply chain and customers.
- Ensuring trade agreements contain innovation chapters and support sustainability principles.
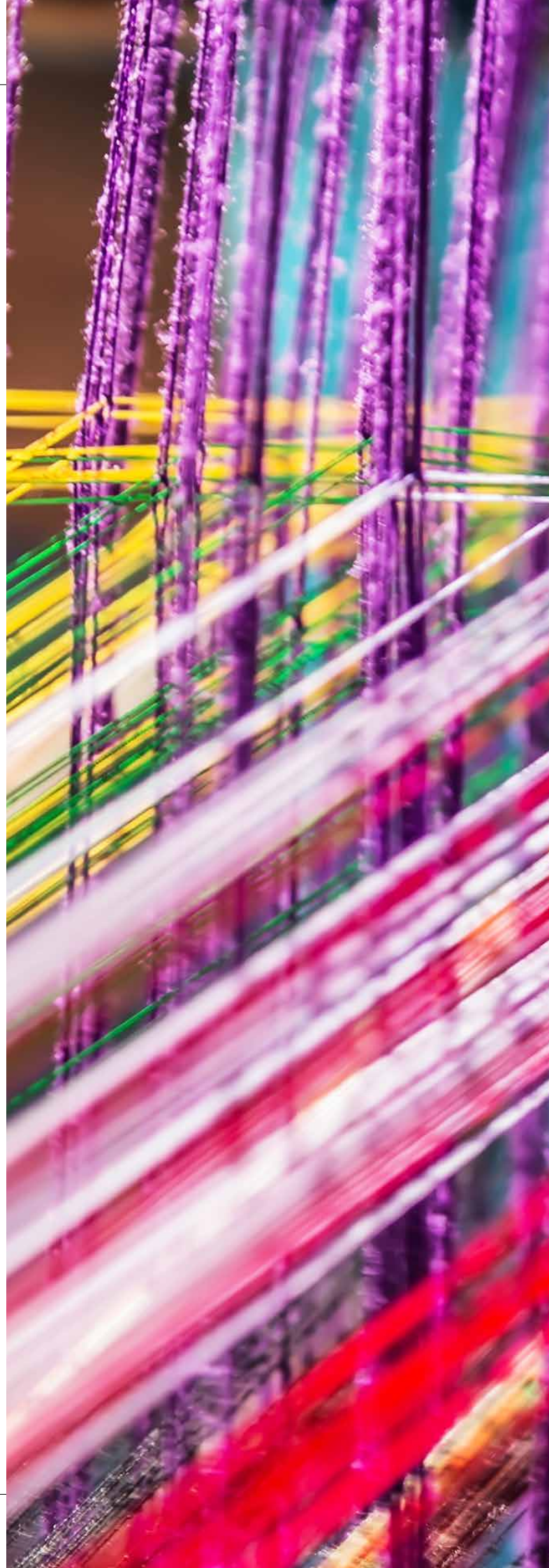
1. India's Sustainable Fashion Landscape

In 2019, the Indian textile and apparel market was worth over $100 billion, however this value fell by 30% in 2020 due to Covid-19. The market is expected to recover and grow to reach US$ 190 billion by 2025-26.[6] The Indian textiles and apparel industry contributed 2% to GDP, constituted 15% of export earnings and held 5% of the global trade in textiles and apparel in 2018-19.[7] In 2019-20, the domestic India textile and apparel market was US$ 75 billion in size and the export market was US$ 35 billion, with US$ 8.3 billion imported.[8,9]

After agriculture, the industry is the largest employer in the country, employing over 45 million people directly and 60 million people indirectly in ancillary sectors[10].

India is a global manufacturing and technology hub. Therefore as the fashion industry moves to increasingly utilise digital technologies in production and consumption models, there is great potential and opportunities for synergy and integration between these industries. COVID-19 has caused significant disruption to fashion supply chains, which has resulted in the increased adoption of digital technologies in fashion.

The country has a rich history of beautiful garments such as the sari, banarasi, patola, kanchiwaram, phulkari, and since the economic liberation of the Indian economy in 1990, Indian designers have emerged with products that have been successful on the world stage. India makes 95% of the world's handmade textiles[11] and is the world's second-largest exporter of textiles and clothing. Exports of cotton yarn, fabrics and handloom products from India have increased by 50% since June 2019.[12]

International fashion brands are not only locating production operations in India for global markets, but to gain market access to India's 600+ million middle-class consumers with disposable income. These international brands include British brands wanting to build a retail presence to sell to the Indian domestic market. Reliance Brands Limited, part of Reliance Industries, a US$190 billion conglomerate, launches and builds international and domestic brand equity in the premium to luxury fashion and lifestyle. As such, they have a large licensing portfolio of international brands.

1.1 Environmental Impact of Fashion

The fashion industry primarily follows a linear production model where the economic model relies on extracting natural resources, making clothes at low cost, and disposing of them after a short period. This production model has come to be described as fast fashion, and concern has grown for its impact on people and the environment.

By 2030 global apparel consumption is projected to rise by 63%, from 62 million tonnes today to 102 million tonnes — equivalent to more than 500 billion additional T-shirts.[13] This will result in the two-fold problem of overconsumption of resources and waste generation.

It is estimated the global apparel industry accounts for 4% of total carbon emissions[14], and the fashion industry will emit 2.1 billion tonnes of CO_2e by 2030. To be on course to meet the 1.5ºC target, emissions need to be no more than 1.1 billion tonnes CO_2e by 2030[15]. This is partly because most clothes are produced in China, India and Bangladesh, which are countries essentially powered by coal, the most polluting fossil fuel[16].

[6] https://www.ibef.org/industry/indian-textiles-and-apparel-industry-analysis-presentation

[7] https://www.ibef.org/industry/indian-textiles-and-apparel-industry-analysis-presentation

[8] https://aepcindia.com/system/files/Annual%20T%20and%20A%20Industry%20Report-2021.pdf

[9] https://wits.worldbank.org/CountryProfile/en/Country/IND/Year/2019/TradeFlow/EXPIMP/Partner/all/Product/50-63_TextCloth

[10] https://www.ibef.org/exports/apparel-industry-india.aspx

[11] https://fashionunited.in/statistics/fashion-industry-statistics-india/

[12] https://www.ibef.org/industry/indian-textiles-and-apparel-industry-analysis-presentation

[13] https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1952/full-report.html

[14] https://www.mckinsey.com/industries/retail/our-insights/fashion-on-climate

[15] https://www.mckinsey.com/industries/retail/our-insights/fashion-on-climate

[16] https://www.sustainyourstyle.org/old-environmental-impacts

1.2 Consumer Sustainability Trends, Attitudes, and Behaviour

Between 2010 and 2018, Indians increased their spending on clothes by 181%[17] due to:

- economic growth;
- a growing middle class with increasing disposable income;
- a large consumer demographic 18-30 years;
- a propensity to consume rather than save;
- shifting consumer behaviour from need-based purchasing to aspiration-based purchasing.

The Voice of India magazine published a white paper on "India Sustainability in 2020", exploring sustainability attitudes and actions. The white paper presents the findings from the survey of four respondent groups: class fashion consumers with limited environmental consciousness, fashion design students, millennials, and industry leaders.[18]

Findings of survey research included:

- Almost half of the consumers surveyed (43%) are not aware of the term sustainable fashion; however, the majority are curious and would like to learn more.
- There is a high awareness of the term sustainable fashion amongst fashion and design students, (85%) of those surveyed.
- Most consumers surveyed (82%) do not consider fashion to be among the top three contributors to pollution.
- Only 18% were concerned with who made their clothes when they bought them.
- Across segments, age groups and respondent type, a fifth (19%) said information about working conditions would help them make a responsible choice.
- 77% of consumers surveyed said they prioritised their fashion buying by decisions by brand name, while 80% said they looked for comfort.
- Indian fashion consumers seem interested to adopt sustainable practices, with 45% indicating they would like to adopt recyclable fashion, where materials like plastic or waste are recycled to make fabric for garments, shoes or bags. 49% indicated they would like fashion garments made from natural sources like coffee beans, bananas or wood pulp.
- Most survey respondents confessed to a disposable mindset when it came to old garments and fabrics – recycling or upcycling to make other useful things out of old clothes only

interested 6% of total respondents.

- Most respondents (83%) were not aware of brands that follow principles of sustainable fashion.
- Two-thirds (63%) of the entire respondent group believe fashion should be responsibly produced. Others are unclear or unconcerned.

In addition, the white paper includes 17 interviews with Indian fashion business leaders, including nine brands that signed the SU.RE charter with IMG Reliance, making a commitment to sustainability goals by 2025. These business leaders share their experiences and insights into their sustainability journey.

1.3 The Industry's Sustainability Commitment

The SU.RE (Sustainable Resolution) project[19], showcased by mission participant RISE, is the Indian apparel industry's largest commitment to move towards sustainable fashion. It was launched in 2019 by Union Minister for Textiles, Smt. Smriti Zubin Irani, along with the Clothing Manufacturers Association of India (CMAI); United Nations in India and IMG Reliance, the organisers of Lakmé Fashion Week. Project SU.RE aims to contribute to the UN Sustainable Development Goals 2030, especially SDG-12, which focuses on responsible consumption and production.

The SU.RE project provides a framework to help the industry reduce its carbon emissions, increase resource efficiency, tackle waste and water management, and create positive social impact to achieve long-term sustainability targets.

The five-point Sustainable Resolution is as follows:

1. Develop a complete understanding of the environmental impact of the garments being produced by our brand.
2. Develop a sustainable sourcing policy for consistently prioritising and utilising certified raw materials that have a positive impact on the environment.
3. Make the right decisions about how, where, and what we source across the value chain by selecting sustainable and renewable materials and processes and ensuring their traceability.
4. Communicate our sustainability initiatives effectively to consumers and media through our online and physical stores, product tags/labelling, social media, advertising campaigns and events.

[17] https://wri-india.org/blog/circular-fashion-rethinking-way-forward-india's-fashion-industry
[18] https://thevoiceoffashion.com/sustainability/india-sustainability-report-/editors-letter-the-india-sustainability-report--3561
[19] https://pib.gov.in/PressReleasePage.aspx?PRID=1582685

5. Through these actions, shift a significant percentage of our supply chain to a sustainable chain by the year 2025, addressing critical global issues such as climate change, contributing to the UN Sustainable Development Goals, and building a world that is safe for future generations, as an acceptance of a responsibility we all share.

Many Indian brands are now working to change the fast fashion narrative, focusing on organic, fair-trade and vegan products. They are exploring new and innovative ways of reusing products or waste materials. For example, India is a hub for sustainable material sourcing as it produces half of the world's organic cotton and is the largest recycler of polyethylene terephthalate (PET) products. Furthermore, there are new fashion business models in India emerging, such as garment rentals and upcycling, as well as material innovation for a circular economy.

2. Sustainable Fashion Showcase

The mission showcased Indian and UK fashion companies and entrepreneurs developing sustainable fashion solutions that are reducing fashion's environmental impacts by:

- Dematerialising through the adoption of digital technologies.
- Avoiding holding inventory by making clothes on-demand.
- Moving from mass production to mass customisation production models.
- Reusing garments through a rental business model.
- Developing processes and the supply chain for repairing, recycling, and upcycling.
- Sourcing natural fibres produced from regenerative agricultural practices.
- Developing new bio-degradable low impact environmental materials.
- Enabling companies to assess and reduce carbon and biodiversity impacts.

(In alphabetical order)

11.11/eleven eleven (India)

11.11/eleven eleven is based on the principle of the khadi way. Khadi is a traditional homespun and hand-woven textile, a national treasure of India. Khadi represents a way of making fabric with a minimal negative impact on the environment. 11.11/eleven eleven represents a continuous quest for mastery. It has consolidated its roots in the luxury space while emphasising creating links between farmers, weavers, natural dyeing, and block printing traditions. 11.11/eleven eleven's the khadi way principle works with seed-to-stitch narrative, which traces the product's origin from cotton to the final maker. Every garment comes with a unique code, enabling the wearer to know all the hands behind the product.
www.11-11.us

Abraham & Thakore (India)

Abraham & Thakore is an Indian fashion and textiles brand known for developing contemporary expressions of traditional Indian textile craft. A key focus of the brand has been working with small scale manufacturers with an emphasis on handcrafted products. Their practice is closely concerned with the role of identity in fashion, particularly in contemporary India. Abraham & Thakore collections are retailed in India and overseas. Their designs have been acquired by the Victoria & Albert Museum in London for their permanent archives. They have been displayed in multiple exhibitions on contemporary Indian design around the world.
www.abrahamandthakore.com

Ananas Anam (UK)

Ananas Anam is the maker of Piñatex, an innovative natural textile made from waste pineapple leaf fibre. The leaves are the by-product of existing agriculture, and their use creates an additional income stream for farming communities. Piñatex is a natural, sustainably sourced, cruelty-free material. From initial sampling to developing a viable supply chain, the Piñatex journey is inspired by the principles of a circular economy and cradle-to-cradle values. The use of pineapple leaf fibre provides the opportunity to build a scalable commercial industry for developing farming communities, with minimal environmental impact. Ananas Anam is a Certified B Corporation.
www.ananas-anam.com

Doodlage (India)

Doodlage upcycles factory waste into limited edition collections and recycles post-consumer waste into new fabrics to create season-less well-finished garments made for longevity. Furthermore, any waste created is segregated and converted into accessories, soft furnishing products and paper to make their packaging and stationery products. All the pieces and fabrics are made with ethical production units, and packaging is designed to be plastic-free.
www.doodlage.in

Flyrobe (India)

Flyrobe is India's largest on-demand fashion rental platform offering premium designer wear to both men and women. Flyrobe currently services 30+ cities in India via its website and mobile apps and has offline stores in Delhi, Mumbai, and Bangalore, with a user base of one million customers. Informing Flyrobe's strategy is the demand for e-commerce businesses that cater to minimalism and focus on sustainability, acknowledging the fact that millennials particularly value experiences. As a sustainability solution, millennials have already started pivoting towards the rental model as it reduces the negative impact on the environment and increases the shelf life of garments. On the supply side, Flyrobe's marketplace inventory model allows designers (B2C) and users (C2C) to make money by renting their designer outfits through Flyrobe.
www.rentitbae.com

InfiniChains (India)

InfiniChains is a Silicon Valley headquartered sustainable tech company. It has offices in the San Francisco Bay area, India and Uganda. InfiniChains raised early-stage capital in 2018 from the family house of Ajanta Pharma, and now has sizable revenue from its enterprise customers and agriculture producers. InfiniChains' Credible software platform is a next-generation green supply chain platform that enables companies to be more transparent. Six hundred thousand farmers also use the platform for organic compliance management, representing about 35% of all organic exports from India. Sustainable manufacturing companies like Welspun and ECOFashion use the Credible supply chain platform. InfiniChains's customer footprint is spread across India, the USA, the EU and Africa. The company is part of Fashion for Good's first South Asia batch.
www.infinichains.com

Pilio (UK)

Pilio, a sustainability innovation company spun out of the University of Oxford in 2011, has developed a suite of energy, carbon, and biodiversity analytical software tools and advisory services for businesses to achieve net-zero and nature positive supply chains. Pilio has been working with companies in the creative industries for over ten years to develop their sustainability strategies, environmental accounting and support them in implementing climate action plans. Pilio is working on a carbon and nature insetting scheme for fashion brands with a focus on cotton and wool supply chains.
www.piliogroup.com

Pratibha Syntex (India)

A sustainability-oriented, vertically integrated manufacturer of knitted textile products since 1997, Pratibha aims to create organic relationships across the value chain. Pratibha connects 35,000 farmers, 10,000 employees and apparel brands from over 20 countries. Pratibha produces over 60 million garments annually, including innerwear, thermals and sleepwear. They supply to more than 20 international leading garment brands across the globe. Apart from manufacturing cotton, fibres, fabrics, and apparel, Pratibha Syntex also engages in social initiatives to generate employment for rural women.
www.pratibhasyntex.com

Roksanda (UK)

Roksanda is a luxury British fashion brand founded over ten years ago to create clothes with a woman-centred design aesthetic. The brand has built a platform to celebrate women's equality whilst seeking to challenge the perceptions of beauty. Roksanda has received multiple awards and nominations, including Red Carpet Designer of the Year at the British Fashion Awards, Designer of the Year at the Elle Style Awards and Business of the Year at Harper's Bazaar UK's Women of the Year Awards. Roksanda has launched a global collaboration with Lululemon. As an established brand Roksanda is committed to addressing their environmental impact and has begun its journey to understand, measure and take action to reduce their impact directly and in collaboration with suppliers.
www.roksanda.com

Samshék (India)

Samshék creates end-to-end women's western clothing by leveraging 3D fit technology to serve both regular and non-regular sizes. With more than 45,000 customisation combinations of every design available on the website in digital form, Samshék can eliminate physical inventory. The cost of unsold inventory alone in the US is $50 billion, according to the Business of Fashion. Samshék is one of a few start-ups that operate with a mass-customised just-in-time digital supply chain. This fresh and disruptive manufacturing process can streamline future production processes for the textile fashion industry. Each item of clothing is produced on-demand; there is no need for overstocking like other mass-produced clothing brands.
www.in.samshek.com

Stylumia (India)

Stylumia is a deep-tech fashion intelligence start-up that provides the world's most accurate and customer demand derived fashion forecast, artificial intelligence and machine learning-powered intelligent assortment planning, distribution localisation, inventory/price optimisation and the world's first automated style generator which produces winning designs. Stylumia's mission is to reduce economic and ecological wastage in the fashion retail industry using technology, by helping brands and retailers to buy less to sell more.
www.stylumia.ai

Supply Compass (UK)

Founded in 2016, the mission of Supply Compass is to reimagine a new way of designing products and managing production, into one that works not just for profit, but also for people and the planet. Supply Compass believes that to transform how goods are designed and produced, full digitalisation of supply chains is the only way forward, but that this will not be successful unless it is underpinned by strong supply chain relationships and is built in collaboration with suppliers and manufacturers, so it works for all parties. Supply Compass founders spent two years in India researching and visiting 300+ manufacturers and suppliers.
www.supplycompass.com

Textile Exchange (Global)

Textile Exchange supports leadership in the sustainable fibre and materials industry. The organisation develops, manages, and promotes a suite of leading industry standards, as well as collecting and publishing vital industry data and insights that enable brands and retailers to measure, manage, and track their use of preferred fibre and materials. With a membership that represents leading brands, retailers, and suppliers, Textile Exchange has, for years, been positively impacting climate through accelerating the use of preferred fibres across the

global textile industry and is now making it an imperative goal through its 2030 Strategy: Climate+. Under the Climate+ strategic direction, Textile Exchange will be the driving force for urgent climate action with a goal of 45% reduced CO_2 emissions from textile fibre and material production by 2030.
www.textileexchange.org

The Dematerialised (UK)

The Dematerialised is a universal supply chain and marketspace for authenticated digital fashion. Powered by the LUKSO blockchain, it enables anybody with an internet connection to access, experience and trade virtual goods. All the virtual goods which are sold on the platform are NFTs (non-fungible tokens). The Dematerialised business model is based upon a traditional sales commission from each sale on the platform. There is a B2C component and a C2C component. The end consumer falls into three main user groups: fashionistas, gamers and the crypto community. The business consumer (creator) also falls into three user groups: established brands, independent physical designers and digital-first creators/artists.
www.thedematerialised.com

Worn Again Technologies (UK)

Worn Again Technologies was born over 16 years ago from a vision to eradicate textile waste and a world where resources are kept in constant circulation. Worn Again Technologies has developed advanced recycling technology to recapture raw materials from non-reusable products (textiles, PET bottles and packaging). The mission of Worn Again Technologies is to replace the use of virgin resources by recapturing raw materials from non-reusable products.
www.wornagain.co.uk

3. National and Industry Priorities

India's national and industry priorities are to continue building a globally resilient and competitive textile and apparel industry. The emphasis shared by Indian mission delegates was for improving manufacturing efficiency, leveraging its technology expertise, strengthening workforce skills and increasing material production (e.g. cotton, viscose, silk and polyesters).

The Indian Government has announced the following initiatives and schemes to support the textile and apparel industry:[20]

Increasing foreign direct investment
- Special scheme to boost exports by $31 billion, create 10 million job opportunities and attract ~$12 billion foreign investment.

Upgrading manufacturing technology
- Amended Technology Upgradation Fund Scheme ($109 million).

Providing training and skills development
- Scheme for Capacity Building in Textile Sector.

Developing integrated textile parks
- $106.6 million for 21 readymade garment manufacturing units in seven states for the development and modernisation of the Indian textile sector.

Incentivising manufacturing production
- $1.4 billion for incentivising man-made fibres and technical textiles.

Advancing technical textiles
- National Technical Textiles Mission ($211.8 million) – a four-year programme which involves research, development and innovation in fibres and application (including biodegradable technical textiles); promotion and development of the market to $50 billion by 2024; export promotion with a 10% year-on-year growth until the mission ends; and support education, training, and skills development.

Supporting handloom weaving
- National Handloom Development Programme ($55.6 million) and Integrated Processing Development Scheme ($7.2 million), plus Weaver MUDRA Scheme to provide loans to handloom weavers and weaver entrepreneurs.

Improving fibre production
- India is a major global producer of natural fibres, including cotton, wool and silk, and as such, there is a range of schemes and incentives to support farmers.
- Provided government support for the building of a plastic processing factory.

Indian industry is investing in the net-zero energy transition. This is evident through Reliance Industries, one of the world's largest petroleum businesses and owner of Reliance Brands, which is investing US$ 10 billion in renewable energy infrastructure over the next three years. Reliance will create four giga-factories to manufacture solar modules to enable 100 gigawatts of solar energy by 2030. They will build large-scale grid batteries to store electricity, collaborating with global leaders on the technology. They plan to build and install electrolysers for separating green hydrogen from water. Another part of their plan is a factory for building fuel cells, which uses oxygen from air and hydrogen to generate electricity.[21]

[20] https://www.ibef.org/industry/textiles.aspx
[21] https://www.energyvoice.com/renewables-energy-transition/332575/fossil-fuels-giant-reliance-will-invest-10bn-in-indian-renewable-energy/

4. Circular Fashion

Moving to Circularity

There is a growing interest and ambition in the UK and India to move from a linear to a circular fashion system. However, one of the main challenges in moving to a circular fashion system is the complexity of the industry's supply chain. Mission participants argued that the development of a circular fashion system requires multi-disciplinary expertise and collaboration with industry, government and academia. The biggest barriers holding back the mainstreaming of a circular system are economic, governance, organisational and behavioural. The current capitalist system is driving the linear fashion system – to change it will require new mechanisms and modes of cooperation through the supply chain to enable innovation, technology, and business models for the uptake of a circular system. Various companies during the mission showcased the adoption of circularity principles, for example, Doodlage's material upcycling model and Flyrobe clothing rental model. However, for circularity to become the de facto model in the fashion industry, the economic benefits of participating need to be there for all stakeholders, from artisans to retailers to consumers. Mission participants talked about the importance of a supporting policy framework incentivising circularity to aid these new economic models.

Building Understanding

To create a circular fashion system, it is necessary to understand the supply chain and the consequence of different choices across the value chain. This involves undertaking lifecycle assessment studies using good quality data. Choices made at the design stage will often determine the environmental impact of the garment; therefore, it is important to understand what materials can and cannot be replaced. In addition to lifecycle analysis of environmental impacts, there is a growing body of work examining the social impacts across the value chain as being highlighted by the Centre for Sustainable Fashion. Mission participants saw building a full understanding of environmental and social impacts as critical for the fashion industry to transition to a truly sustainable industry.

Rebuilding Circularity

In India, there is a long tradition of a circular fashion model with upcycling and recycling. However, these circular models have broken down in recent decades with the adoption of industrial-scale manufacturing. After China, India is the second most populated nation in the world at 1.3 billion, and the majority (900 million people) still live in rural areas. With labour, materials, infrastructure, and digital technology decentralised, the mission participants discussed the potential for rebuilding a circular fashion system in rural areas with sustainability principles at the core. 11.11/eleven eleven shared their experience of the many small scale examples in rural India where the circular fashion model includes growing, processing, making and recycling, which connects to the supply chains of domestic and international fashion brands.

Designing for Circularity

Ananas Anam, emphasised that in her experience circularity needs to be included in their design process from the outset and be part of the research and development process for creating new fibres and garments. Therefore, creators and designers can have a significant influence in determining the environmental impact of a garment. They need to think about the materials being used, the construction of the garment to make disassembly easy, and the recycling streams to recover post-consumed garments. Professional and new designers need to consider the full environmental and social lifecycle of the garments they create, which requires training, tools, knowledge, and experimentation. To encourage and promote circular design, the Circular Design Challenge has been launched for young fashion/accessory designers and entrepreneurs to showcase and win a prize for their innovative ideas and collections made by using materials from diverse waste sources, including plastic. The Challenge has been launched in collaboration with Fashion for Earth by R|Elan, UN Environment and Lakmé Fashion Week. It is India's first and largest sustainable fashion challenge in the fashion, textiles, and apparel industry.

Preventing Overproduction

The advantage of circular models is that they can prevent overproduction, a major issue for the industry. A shift in the economic model is needed to reward and incentivise practices that do not result in overproduction. It should be achievable to prevent overproduction by deploying technology and processes that enable the supply chain to be more efficient and not hold excess inventory. For example, Supply Compass has created a digital platform for creating efficiency through the manufacturing process. Stylumia has created an array of digital technologies to manage assortment planning, distribution localisation and inventory optimisation. Samshék has developed 3D design technologies enabling a mass-customised just-in-time digital supply chain, which prevents overproduction by manufacturing only what is ordered by customers.

Recovering Materials

A major challenge for the fashion industry in developing circularity is recovering and reusing materials. There are examples, such as Worn Again Technologies, that are developing processes using materials from other industries, such as plastic bottles for the material input in textiles and apparel. However, as these industries recover these materials for developing circularity in their own goods, there will not be sufficient material feedstock to meet the needs of the fashion industry. Furthermore, using other industries' waste materials does not address the fundamental problem that fashion garments are not being recovered at the end of life.

In both the UK and India, a significant proportion of post-consumed garments go to landfill. In Europe, only 1% of post consumed garments are recovered and processed into a material that is used to produce new garments[22]. India is the world's second-largest receiver of post-consumer clothing. It would help if governments could be clearer about producer responsibility in the making and recycling of garments. As such, mission participants talked about the role of some standards and regulations to make sorting and processing post-consumer waste easier, such as labelling the fibre specification in the garments. Given that the supply chain is international, it will be necessary to cooperate with governments to establish standards and regulations.

Mission participants emphasised the pivotal role local waste and recycling infrastructure plays in materials being successfully collected, sorted, and transported. The fashion industry needs to work in partnership with waste management and logistic companies. Innovation of the material recovery technologies, processes, and business model is needed to unlock and scale a circular production and consumption system. There are a growing number of entrepreneurs and municipalities working around the world to tackle this material recovery and processing challenge, but most of the innovations are at the demonstrator stage, and more research and development is needed for these innovations to be in a position of being replicable or scalable.

Mission participants said significant investment is now needed to create the infrastructure for collecting, sorting and processing recovered materials both in the UK and India. However, the investment needs to be deployed in ways that are appropriate to the local context as there is heterogeneity in household recycling and waste management as well as

in the fibre content of materials. The fashion industry would benefit from studying and learning from other industries about how they are successfully recovering and reusing materials to produce goods and services.

Shifting to Consuming Less

Circular fashion models hold promise for creating resource efficiency, but they do not negate the importance of reducing the volume of clothing being consumed. Changing consumption patterns will require consumer education and making new patterns of consumption attractive such as clothing rental models that are gaining traction in India.

Engaging with the Consumer

Communicating and engaging fashion consumers on what constitutes sustainable fashion is difficult. There is a lot of complexity, different terminology and varying answers depending on the context and a multiplicity of (emerging) standards. For example, terminology such as sustainable, ethical, eco-friendly, circular, net-zero, carbon-neutral is widely used, with materials being described as organic, biodegradable, compostable, recyclable etc. For consumers, it has become confusing to understand the key issues and to know how best to support the transition to sustainable fashion.

For fashion brands, the lack of clear language regarding sustainability comes at a risk as companies might not be adopting good environmental and social practices whilst overclaiming on their credentials, with consumers, peers and regulators unable to check due to lack of transparency and traceability in the supply chain. The lack of industry definitions for what is meant by eco-friendly, sustainable and regenerative, which can result in misleading marketing, was discussed. Furthermore, fashion companies do not necessarily provide consumers with much detailed data of what they are doing, e.g. in terms of sourcing.

Fashion brand delegates shared how their approach to sustainability has been not to claim they have all the answers, but rather to share with customers their sustainability journey. Fashion brands such as Roksanda said they are noticing consumer awareness is increasing, and therefore their expectation is that garments are responsibly produced.

The key to creating a successful circular fashion system is for consumers wanting to purchase clothing made from recycled fibres (i.e. demand) and consumers recycling garments at the

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[22] https://www.cbi.eu/market-information/apparel/recycled-fashion/market-potential

end of life (i.e. supply). This involves educating consumers on how sustainable fashion is created and making it desirable for consumers to buy or rent garments constructed from recycled materials. For a circular fashion system to scale, the consumer is required to participate fully. Fashion has a tradition of successfully marketing to consumers what they want, so it should be possible to mainstream the desirability of participating in a circular, rather than linear, fashion system.

Co-investing for Circularity
There is recognition that in the UK and India, public funding will only go so far in helping the textile and apparel industry transition to net-zero. There are presently many small and experimental efforts to test and demonstrate the potential of a circular fashion model, but it was suggested that taking these promising efforts to scale will require engagement and investment by large retailers to pilot and mainstream (Indian and international brands). To create a thriving fashion ecosystem, investment in circularity needs to happen both in rural and urban areas. Each company will need to identify the opportunities and requirements for their product line and then work with their supply chain and sourcing areas to create appropriate infrastructure and processes for developing a circular model.

5. Digital Fashion

India has been embracing digital technology for many years and appreciates the potential of technology for creating efficiency and new processes. Major garment manufacturers use mature technologies to track and trace production lines for efficiency.

Increasingly, mobile technology is being adopted to improve farming practices that produce natural fibres as well as to access markets. However, most Indian fashion brands still use digital technology in a limited way – for example, only for marketing or production, rather than integrating it through the whole business. The adoption of digital technologies to date is primarily driven by savings in time and money, with sustainability being a secondary benefit rather than of initial perceived value.

Allowing Collaboration
Digital technologies enable different contributors to collaborate through the design and production process, such as that developed by Samshék. However, there are potential intellectual property issues that need considering when a collaborative approach is being used. Digital technologies enable designs and samples to be created virtually without the need for physical versions, thus cutting waste.

Harnessing Data
Huge amounts of data are held in the fashion supply chain, but the data can be fragmented or exist only as physical copies. The rapid digitalisation of data held in the fashion supply chain, as mission participant the University of Leeds said, has the potential to be processed to improve efficiencies, create products people want and derive new revenue streams. Companies such as Supply Compass, Stylumia and InfiniChains are demonstrating how data from within the fashion supply chain can be used to create efficiency for improving sustainability.

Enabling Customisation
Digital technologies, such as those developed by Samshék, allow customers to specify what they want from fabric, fit and colours. This flexibility appeals to millennial consumers that are attracted to expressions of individuality versus uniformity. There is a lot of innovation, enabling customisation through the supply chain, making it more efficient and cost-effective.

Digital technologies from automation technologies on manufacturing assembly lines (e.g. Supply Compass) and digital ordering to access thousands of handicraft makers will enable customisation pattern cutting and stitching to make garments customers want. Both innovations and applications of technology will allow garment customisation to be scaled. Furthermore, the influence of finishing technologies for ensuring material recoverability, functionality and aesthetic can have a major impact on the overall sustainability of the garment throughout the lifecycle.

Producing Garments On-Demand
Digital technologies are enabling garments to be produced on-demand to minimise wastage as customers can pre-order what they want, and consequently, the garment is made to their request using 3D modelling technology as Samshék has developed. The advantage for fashion brands and suppliers is that they only manufacture what is ordered, greatly reducing overproduction and holding of excess inventory and stock (e.g. Stylumia and Supply Compass). Within communication and logistics technologies, customers receive their orders within a short amount of time; however, customers still need to shift their expectations from the immediacy of the traditional shopping experience. With the growing trend in online shopping, the move to on-demand production is ever more possible.

Allowing Distributed Production
India has the world's largest talent pool of handicraft and traditional garment makers, dispersed across the whole country. Digital technology is opening market access to this talent pool, as discussed by 11.11/eleven eleven and Abraham & Thakore.

Renting Garments
A fashion business model that is gaining momentum is clothing rental, as illustrated by Flyrobe. According to Indian delegates, there is a growing interest and acceptance of renting garments rather than ownership. The rental model has been particularly successful for special occasion wear because these outfits

are worn infrequently, and a wedding (for example) might require several outfits over the course of the celebrations. The companies attending the mission, which offer garment rentals, shared the importance of providing an online outfit selection experience alongside going into the retail store to try the outfit on for fit. Digital technologies are used by the company for managing and processing the stock – it is used at every stage of the rental from selection to returns.

Telling Stories

Digital technologies such as QR codes enable lots of information to be easily shared with the end consumer, telling the story of each garment; who produced the garment, where it was sourced and the sustainability practices.

Enabling Transparency

One of the potentially powerful benefits of digital technologies such as InfiniChains' Credible software platform is the ability to trace a garment through the supply chain. Technologies such as blockchain enable the chain of custody to be documented and thus sustainability practices more easily checked. Digital technology enables information about the social and environmental properties of the garment to be transparent. Brands will be able to share and evidence the sustainability of the garment. As well as aiding the customer, brands can use this technology to run due diligence on suppliers.

Emerging Innovation

There was a discussion in the mission's digital technologies roundtable about the emergence of new virtual experiences and the next iteration of the internet, known as the metaverse or "mirror world": a merging of the physical world with digital. The metaverse includes videoconferencing, gaming, cryptocurrencies, email, augmented reality, virtual reality, social media and live streaming. The technologies are already in early commercial products and constantly maturing as technological limitations are overcome.

Early commercial products relevant to fashion include: online video game Fortnite, virtual reality design tools, social media tools like SnapChat's Lens Studio and augmented reality tools that superimpose an interactive virtual world on a real one like a street map.

Although the internet allows many virtual worlds to exist online, users cannot move between them while retaining their identities and assets. The development of a metaverse would address this problem by enabling disparate online worlds to become a single seamless entity. The metaverse does not yet exist, but it is anticipated with the explosion of innovation and investment in augmented reality technologies. This would open new modes in the production and consumption of fashion.

In the context of the sustainable fashion agenda, delegates discussed how developing these virtual experiences and digital technologies could enable dematerialisation in production and consumption processes. This was illustrated by the UK company, The Dematerialised, whose innovation enables the creation of virtual-only collections purchased with non-fungible tokens (NFT), a unit of data stored on a digital ledger, called a blockchain, that certifies a digital asset to be unique and therefore not interchangeable. NFTs are tracked on blockchain to provide owners with proof of ownership that is separate from copyright[23]. There is a growing market in NFTs across the creative industries, including fashion. For example, as The Dematerialised showcased, the emergence of virtual clothing of virtual personas advancing a hybrid of our virtual and online life. Therefore, NFTs could enable a dematerialisation of fashion. People would only need virtual versions of clothing (e.g. social media avatars) and can create a customised wardrobe without the need for physical products.

Training and Skills Development

Delegates discussed the importance of training and skills development of fashion students to understand how to use digital technology as they go into the workforce. Delegates from fashion and design schools talked about how the exploration and application of digital technologies go into the curriculum. In addition, people already within the profession will need to be exposed and trained so companies can take advantage of the opportunities presented by digital technologies in the supply chain.

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[23] https://en.wikipedia.org/wiki/Non-fungible_token

6. Policy Alignment and Partnership Building

UK-India Free Trade Agreement

In 2020-21, the UK was India's fourteenth largest trading partner, accounting for US\$ 8.7 billion in exports and US\$ 6.7 billion in imports. The Ministry of Textiles favours a deal for the UK-India free trade agreement that could boost the garments sector. Under the proposed trade agreement, the Textile Ministry expects more market access for the Indian textiles and clothing sector to achieve its full potential. Mission delegates emphasised the potentially powerful and catalysing opportunity for accelerating the transition to a sustainable fashion system by ensuring the India-UK free trade agreement is underpinned by sustainability principles, which will result in transparency and traceability in the supply chain with strong environmental and social practices.

Present Collaborations between the UK and India

The British Council and the Ministry of Textiles have a memorandum of understanding to advance shared priorities and interests for developing a positive fashion ecosystem.

Crafting Futures Scheme

Crafting Futures is a global programme from the British Council aiming for a sustainable future for craft by understanding its value in our history, culture, and the world today. This collaboration scheme enables Indian and UK partners to co-develop and collaborate on projects exploring the following questions:

• What are new ecosystems for craft?
• How can traditional skills, contemporary design and enterprise come together to create new systems?
• How can craft be a route to women's empowerment and leadership?
• How can craft address global environmental challenges?
• How can craft tourism ensure craft is widely appreciated?
• What possibilities does digital technology bring to craft?

Further, through the India-UK Year of Culture, British Council and RISE came together for Crafting Futures India with a focus on handlooms of Tripura, Northeast India. Designers Bethany Williams and Aratrik Dev Varman went through a residency in Northeast India to explore various clusters working on handloom textiles, with an aim to engage with the weavers to develop new textiles and help them with livelihood opportunities.

International Fashion Showcase at London Fashion Week

In collaboration with the British Fashion Council, RISE organised a special sustainable fashion installation at the International Fashion Showcase with five designers showcasing one look, each inspired by the multi-faceted ethnic lifestyles of India's nomadic pastoral communities, bringing home the Best Country award.

7. Summary Observations

1. India is one of the world's largest fashion producers and consumers. Therefore, supporting the development of a sustainable production and consumption system is paramount for the global fashion industry to achieve net-zero ambitions.

2. Many global fashion brands have production operations in India. A growing number are expanding their retail presence in India, given the large size of India's domestic consumer market. In addition, Indian fashion brands are exporting and building their presence in global fashion markets.

3. In recent decades, India has followed the conventional linear mass production model, which, like elsewhere in the world, has given rise to fast fashion where clothes can be produced and consumed inexpensively, but the full external environmental and social costs are not internalised, and therefore as a model, it is not sustainable and needs to be fixed.

4. India is a globally-leading manufacturing and technology hub with advanced production capabilities and a growing entrepreneurial scene which places India in a strong position to work with the global fashion supply chain to create a more sustainable fashion system.

5. There are exciting Indian fashion companies and entrepreneurs developing sustainable fashion solutions that reduce fashion's environmental impacts by:
   - Dematerialising through the adoption of digital technologies.
   - Avoiding holding inventory by making clothes on-demand.
   - Moving from mass production to mass customisation production models.
   - Reusing garments through a rental business model.
   - Developing processes and the supply chain for repairing, recycling, and upcycling.
   - Sourcing natural fibres produced from regenerative agricultural practices.
   - Developing new bio-degradable low impact environmental materials.

6. India is starting to platform and support sustainable fashion innovation and commitment through the SU.RE (Sustainable Resolution) project launched in 2019 by the Ministry of Textiles, along with the Clothing Manufacturers Association of India (CMAI); United Nations in India; and IMG Reliance, the organisers of Lakmé Fashion Week.

7. In the mainstream, innovations in the Indian fashion industry are driven by the need to improve efficiencies through the supply chain and grow market access rather than to meet the societal challenges of climate change and the Sustainable Development Goals.

8. Like the UK, there is interest in building circular fashion production and consumption models, but there are significant infrastructure challenges in collecting and processing post-consumer garments. In both countries, there is a shortage of investment to address these challenges.

9. There is an emergence of game-changing digital and computer technologies being deployed into the fashion system from machine learning (AI), robotics, blockchain, non-fungible tokens (NFTs), augmented reality, computer visualisation and e-commerce.

10. International brands are increasingly expecting and requiring Indian suppliers to adhere to environmental and social standards. These are a combination of schemes set by the international brand or international standards bodies (e.g. recycled textile standard or organic cotton). Furthermore, as a growing number of international brands sign-up to the UN Fashion Charter and set their corporate sustainability goals, many of these brands require carbon, environmental and social reporting from their suppliers.
    - As in the UK, there is a growing awareness and desire from Indian consumers and fashion professionals to adopt sustainable fashion practices, but there is a lot of confusion, misleading information and terminology.
    - The Free Trade Agreement currently being negotiated between the UK and India provides an opportunity for ensuring mutual market access for the trade of goods and services that adheres to and increases the demand for better sustainability standards.

8. Conclusions

- There are many points of intersection and synergy between the UK and India that should be deepened and broadened to advance the sustainable fashion agenda, including:
  - Promote, nurture and invest in sustainable fashion innovation.
  - Encourage collaboration through the fashion supply chain to accelerate net-zero.
  - Exchange and partnership of science and research to advance sustainable fashion.
  - Align domestic policy and international agreements to incentivise and support producers and consumers to adopt sustainable fashion through, for example, minimise standards, tax schemes, environmental reporting and labelling.

- **Sustainable fashion in India:** Understanding, practices and innovation for developing a sustainable fashion system are at a nascent stage in India. However, there is growing recognition that to be a preferred fashion market for production and consumption requires the development of a fashion system embedding sustainability. This effort greatly benefits from international collaboration and investment from global fashion businesses, and a supportive international and domestic policy landscape.

- **Measuring environmental and social impacts:** Achieving standardised methodologies and approaches for measuring environmental impacts, especially in the supply chain, is very difficult. Development of these, alongside the training and tools, will be critical to ensure the efforts to reduce the sustainability impacts are evidence-based and allow for transparency and traceability so that good practices can be rewarded and incentivised for wider adoption.

- **Scaling innovation:** Many sustainable fashion innovations are being developed by small and large companies, but for these to be scaled across the industry supply chain requires collaboration and investment from large global and Indian brands as well as a supportive government policy and partnership framework. Full-scale piloting and testing of innovation in India could make a significant contribution to helping unlock the net-zero transition for the global fashion industry.

- **Sustainability literacy:** There is a need to improve literacy and understanding of the issues in fashion to create the demand and supply for a sustainable fashion system.

- **Technology potential:** Deployment of digital and computer technologies potentially can support the development and acceleration of a sustainable fashion system, but only if the sustainability outcome parameters and incentives are put in place by brands, suppliers, and governments; otherwise, the risk is technology only perpetuates the current unsustainable fashion model of overproduction and consumption.

- **New fashion models:** The combined agendas of sustainability, livelihoods, consumer demand and technology innovation opens the potential for a fashion system that could look radically different in the next decade. For example, a fashion model that gives textile makers in rural India market access to global and domestic customers to provide them with custom-demand garments that adhere to strong sustainability practices that are circular, traceable and transparent enabled with digital technologies. Fashion cuts across each of the Sustainable Development Goals. Therefore it is an industry that can exemplify how taking a holistic approach can improve lives and the ecosystems society depends on.

9. Recommendations

The UK should leverage and amplify its leadership in sustainable fashion

This is the third Global Expert Mission funded by Innovate UK and delivered by KTN focused on sustainable fashion organised in partnership with the UK Science and Innovation Network, the Department for International Trade and UK Research and Innovation's overseas offices. It is clear from these missions that the UK is a global leader in the sustainable fashion arena, demonstrated by the UK government's prioritisation of fashion as a strategic industry and the UK's competitive advantage due to its research excellence, British brands' net-zero ambitions, and innovation community consisting of both fashion and/or sustainability-focused organisations and non-profit organisations (e.g. Ellen MacArthur Foundation, Wrap and Cotton Connect). The UK should aim to deepen and build strategic partnerships across fashion markets visited during these missions, adding weight to the existing efforts such as the UN Sustainable Fashion Charter and the Fashion Pact. A strong alliance could be formed between the UK and India to unlock the potential of both countries to boost sustainable fashion, which would yield mutually beneficial economic returns whilst meeting the 1.5ºC and SDG commitments.

Ensure the UK-India free trade agreement supports sustainability practices

The free trade agreement opens the opportunity for supporting trade between the two nations that adhere to strong sustainability principles. Goods imported and exported between the nations should be transparent about their sustainability practices, adhering to strong minimum standards with incentivisation for the adoption of good practice. For example, India's electricity system is one of the most polluting in the world, with coal most dominant in the energy mix at 76%, resulting in garments manufactured in India holding a relatively high emissions tag compared to the UK, with coal contributing to only 2% of electricity generation[24,25]. The carbon cost needs to be reflected in the price of importing garments.

Create a collaborative research programme

The UK is globally recognised for its research excellence in environmental sustainability broadly and within sustainable fashion specifically. Over the years, there have been very fruitful research collaborations between Indian research institutions and individual researchers. However, this mission did not scope the research landscape, so it would be beneficial to identify these bodies and explore what a joint research programme could look like. For example, given India is a major hub for post-consumer garments coming from the UK, research examining circular fashion models and recycled materials would be an area of mutual interest where collaboration could unlock new production and consumption pathways. The research programme should connect with on-the-ground practitioners and have an element of demand and challenge-led research. In addition, research of the full value of a sustainable fashion system in terms of environmental, social, cultural, and economic should be developed. Delegates emphasised the importance of taking a holistic approach to sustainability in fashion as otherwise analysis and consequent strategy will not unlock the full benefits for everyone in society.

Build international standardisation and datasets

Developing robust, sustainable fashion models requires good information to better enable fashion businesses to successfully transition to net-zero as otherwise unintended consequences can occur, which could make the situation worse, not better. With its expertise in sustainability impact analysis, the UK is very well positioned to help create international standards and datasets. It would benefit the industry to develop best practice examples and benchmark indices to enable performance comparison. There are several international efforts to develop sustainable fashion standards and datasets. The UK and Indian governments, in combination with the supporting industry associations, could give resources to these efforts.

Support for digital innovation for sustainable fashion

The fashion industry is radically changing with the rise of digital technologies. Both countries have world-leading technology sectors, which could be leveraged to drive digital innovation for accelerating the development of sustainable fashion intentionally rather than as a coincidence. Digital technologies, for example, hold significant potential for creating transparency in the fashion supply chain, avoiding waste through the garment lifecycle, and creating distributed production models.

Support for circularity fashion models

Developing circular fashion models would make a significant contribution to drastically reducing the environmental impacts of fashion, as well as creating distributed livelihood opportunities for collecting and processing post-consumer clothing. Hundreds of thousands of tonnes of post-consumer

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[24] https://www.carbonbrief.org/the-carbon-brief-profile-india
[25] https://www.gov.uk/government/news/end-to-coal-power-brought-forward-to-october-2024

clothing are recovered[26]. However, even when fibres are converted to new materials, knowledge of these materials is low. The development of circular fashion models is an area of shared interest between the UK and India. Therefore a definite priority area for developing a collaborative programme focused on recycling infrastructure, advances in material processing, alignment on material content labelling and sorting technologies. It would be beneficial to develop supply chain partnerships (e.g. government, fashion companies and logistic companies). Furthermore, it would be beneficial for the fashion industry to gather learning on how other industries are developing circular models and if there are learnings and approaches that would be applicable for adoption.

Develop public-private financing schemes
There was broad recognition from the expert delegates that the challenges for unlocking a sustainable fashion system cannot be achieved with public funding alone as this funding primarily supports early-stage innovation and piloting. There is a lot of small-scale experimentation, but also a need for pilots to take sustainable innovation to the next scale requiring engagement and investment from large international and fashion businesses, as well as public financing to support innovation that is targeted towards meeting the societal challenges of climate action, biodiversity loss and social equity etc. In addition, as outlined above, India has a high carbon emission energy system, so there is a need for public-private financing schemes to incentivise investment in renewable energy infrastructure and accelerate India's shift from fossil fuel energy, especially coal. The UK government overseas aid programmes should ensure assistance for sustainable energy investments is targeted to greening the energy infrastructure used by the fashion supply chain.

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26 https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1952/report-files/195207.htm

Annex 1

List of UK Participants

Arts Humanities Research Council (AHRC)

Ananas Anam

ASOS

British Fashion Council

Centre for Sustainable Fashion, London College of Fashion

Centre for Circular Design, Chelsea College of Arts

The Dematerialised

Department for International Trade

Innovate UK

KTN

Natural Environment Research Council (NERC)

Pilio

Roksanda

Supply Compass

Textile Exchange

University of Leeds

Worn Again

List of India Participants

11.11/eleven eleven

Abraham & Thakore

Aditiya Birla Fashion and Retail Limited

Clothing Manufacturers Association of India (CMAI)

Doodlage

Flyrobe/Rent It Bae

InfiniChains

Pratibha Syntex

Reliance Retail

RISE

Samshék

Stylumia

ktn | Global Alliance