वस्त्र मंत्रालय
MINISTRY OF
TEXTILES
सत्यमेव जयते

परंपरा और पर्यावरण

Sustainability *in the* Handloom Traditions of India

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in the
Handloom Traditions of India

Development Commissioner (Handlooms)
Ministry of Textiles, Government of India

Prepared for
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By Centre for Environment Education (CEE)

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Disclaimer

This book is a non-commercial volume which builds on a CEE study commissioned by the UN Environment Programme (UNEP) in India on "Documenting sustainability in Indian handlooms". This book is published by the Development Commissioner (Handlooms) in collaboration with the Centre for Environment Education (CEE), Ahmedabad. It does not purport to be a comprehensive and exhaustive treatise on the subject. While every effort has been made to ensure accuracy of facts, figures, grammar and language, no legal or financial liability shall accrue under any circumstance on any grounds whatsoever to the publishers or any individuals or agencies associated with the preparation of this book. The book contains several articles authored by experts in the field to provide a comprehensive perspective on the sector. The views and opinions expressed in this publication are those of the authors and do not necessarily reflect the views of DC (Handlooms), UNEP, or CEE.

MESSAGE

Giriraj Singh

Minister of Textiles
Government of India

In the rich tapestry of India's cultural heritage, few threads are as vibrant and enduring as those of its handlooms and other textile traditions. These weaves reflect not only amazing skills of our weavers but also showcase how they embody principles of sustainability that modern industries are only beginning to rediscover.

For centuries, Indian handlooms have been a testament to sustainable practices zero defect and zero effect, long before the term 'sustainability' became a global buzzword. These practices are excellent examples of the principles of circularity. From the use of natural dyes to the conservation of water, every step in the traditional handloom process is a lesson in ecological balance and respect for the environment.

In the current times of triple planetary crisis (climate change, pollution and biodiversity loss), this coffee table book celebrates the symbiotic relationship between weavers and society, showcasing how their work supports biodiversity, and provide decentralized livelihoods to millions especially rural women and tribal communities spread across India. It also discusses the challenges posed by industrialization and fast fashion, and efforts by different stakeholders to ensure that these invaluable traditions are preserved.

As we explore the diverse traditions from various regions, we are reminded of the profound wisdom embedded in these practices. Each fabric, each motif, tells a story of cultural identity, environmental stewardship, and creative ingenuity. By embracing and promoting these sustainable textile traditions, we honor not only the handloom workers but also the planet that nurtures us all. This coffee table book invites us to support sustainable handlooms and textiles, to appreciate the painstaking efforts of our handloom workers, and to integrate their timeless wisdom into our modern lives. I congratulate DC Handlooms and their entire team for this wonderful initiative.

(Giriraj Singh)

संदेश

गिरिराज सिंह
वस्त्र मंत्री
भारत सरकार

भारत की सांस्कृतिक विरासत के समृद्ध ताने-बाने में, कुछ धागे इसके हथकरघा और अन्य वस्त्र परंपराओं के समान जीवंत और स्थायी हैं। ये बुनाई न केवल हमारे बुनकरों के अद्भुत कौशल को दर्शाती है, बल्कि यह भी दर्शाती है कि वे कैसे सस्टेनेबिलिटी के सिद्धांतों को अपनाते हैं, जिसे आधुनिक उद्योग अभी फिर से खोजना शुरू कर रहे हैं।

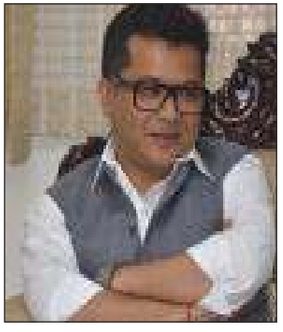
'सस्टेनेबिलिटी' शब्द के वैश्विक चर्चा बनने से बहुत पहले ही, सदियों से, भारतीय हथकरघा उद्योग पर्यावरण पर 'जीरो डिफेक्ट और जीरो इफ़ेक्ट' की सस्टेनेबल प्रथाओं का एक प्रमाण रहा है। ये प्रथाएँ सर्कुलेरिटी के सिद्धांतों का उत्कृष्ट उदाहरण हैं। प्राकृतिक रंगों के उपयोग से लेकर जल संरक्षण तक, पारंपरिक हथकरघा प्रक्रिया में हर कदम पारिस्थितिक संतुलन और पर्यावरण के प्रति सम्मान का एक उदाहरण है।

वर्तमान समय में जब धरा पर तीन तरह के संकट (जलवायु परिवर्तन, प्रदूषण और जैव विविधता हानि) उत्पन्न हो रहे हैं, यह कॉफी टेबल बुक हथकरघा कारीगरों और समाज के बीच सहजीवी संबंधों का कीर्तिगान करती है, तथा दिखाती है कि किस प्रकार उनका काम जैव विविधता का समर्थन करता है, तथा लाखों लोगों, विशेषकर भारत भर में फैली ग्रामीण महिलाओं और जनजातीय समुदायों को डिसेंट्रलाइज्ड आजीविका प्रदान करता है। आज के समय में औद्योगीकरण और फास्ट फैशन द्वारा उत्पन्न चुनौतियों तथा इन अमूल्य परंपराओं को संरक्षित रखने के लिए विभिन्न हितधारकों द्वारा किए जा रहे प्रयासों पर भी चर्चा की गयी है।

जैसे-जैसे हम विभिन्न क्षेत्रों की विविध परंपराओं का पता लगाते हैं, हमें इन प्रथाओं में निहित गहन ज्ञान का स्मरण होता है। प्रत्येक वस्त्र, प्रत्येक रूपांकन, सांस्कृतिक पहचान, पर्यावरणीय प्रबंधन और रचनात्मक सरलता की कहानी कहता है। इन सस्टेनेबल हथकरघा वस्त्र परंपराओं को अपनाने और बढ़ावा देने से, हम न केवल हथकरघा श्रमिकों का सम्मान करते हैं, बल्कि उस धरा का भी सम्मान करते हैं जो हम सभी का पोषण करती है। यह कॉफ़ी टेबल बुक हमें सस्टेनेबल हथकरघा वस्त्रों का समर्थन करने, हमारे हथकरघा श्रमिकों के श्रमसाध्य प्रयासों की सराहना करने और उनके कालातीत ज्ञान को हमारे आधुनिक जीवन में एकीकृत करने के लिए आमंत्रित करती है। मैं इस अद्भुत पहल के लिए डीसी हैंडलूम्स और उनकी पूरी टीम को बधाई देता हूँ।

(Giriraj Singh)

MESSAGE



Pabitra Margherita

Minister of State for
External Affairs & Textiles
Government of India

It gives me an immense pleasure to introduce this coffee table book on the auspicious occasion of **10th National Handloom Day** which will be celebrated on 7th August 2024. This book beautifully encapsulates the essence of sustainability in India's handloom and textile traditions.

Our country with its rich and diverse cultural heritage has always been a treasure house of ecological wisdom and sustainable lifestyles. This book is a testament to the beautiful weaves of India and the vivid intrinsic traditions of embellishing them.

It is crucial to recognize and celebrate the sustainable methods inherent in our handloom sector. The commitment to using natural resources responsibly, ingenious techniques that minimize waste and the marvelous ways of creating fabric with timeless appeal, are lessons that our Handloom Sector will showcase to the modern world.

This book serves as a bridge between the past and the future, highlighting how traditional practices can lead the way in sustainable development. It also flags some concerns these traditions are facing today, with the objective of revitalizing these traditions, and promoting them.

Pabitra Margherita 29/7

(Pabitra Margherita)

MESSAGE

Rachna Shah, IAS

Secretary
Government of India

On the occasion of National Handloom Day, it gives me immense pleasure to present the coffee table book on Sustainable Handloom Traditions of India, that showcases the vibrant world of Indian handlooms and textile traditions, celebrating our rich cultural diversity, fine artistic skills, creativity and reverence for nature. These traditions stand as a beacon of sustainable practices based on ecological wisdom and cultural heritage.

Our handloom sector is not just about weaving beautiful fabrics; it is also about weaving a sustainable future. Every region of the country has its own unique weaves and textile crafts, which have been preserved and passed on by communities over generations. The use of organic materials, natural dyes, and eco-friendly techniques reflect profound respect for nature and deep knowledge of our surrounding environment.

The handloom sector has a critical role in revitalising the rural economy in a sustainable manner and contributing towards "Atmanirbhar Bharat". This coffee table book is unique in its presentation of the rich handloom traditions, challenges faced and the way forward. I am sure that the book will serve as a great resource for connoisseurs of our traditional textiles as well as those who are exploring a fresh and sustainable alternative in the form of different weaves, innovative fibers, natural dyes and embellishments in the textile and fashion sector.

Rachna

(Rachna Shah)

MESSAGE

Dr. M. Beena, IAS

Development Commissioner Handlooms
Government of India

We are delighted to present this coffee-table book. This exquisite volume delves into the rich heritage of India's handloom and textile traditions, as well as innovations and perspectives from practitioners.

Handlooms have the potential to make a significant impact on the global fashion market. The unique weaves, natural dyes, and intricate patterns of Indian textiles with its hand-made nature and minimal carbon footprint, has much to offer to the modern textile industry that is trying hard to reduce its environmental impact.

The role of the handloom sector extends far beyond fashion. It has tremendous potential to provide sustainable livelihoods to millions of weavers and artisans in rural and tribal areas across the country. Through various initiatives like the National Handloom Development Programme (NHDP), the government is aiming at fostering growth and sustainability in this sector.

'*Parampara aur Paryavaran* - Sustainability in the Handloom Traditions of India' is not just a book; it is a tribute to the artisans whose skills and stories are woven into the very fabric of our nation. We invite you to explore this celebration of tradition, sustainability, and innovation.

(Dr. M. Beena)

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INNOVATIONS

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Introduction

Indian handlooms are one of the oldest traditions in the world. India has knowledge of cotton thread making dating back to 4000 BC, and dyed fabrics have been documented around 2500 BC. Abundant references to woven fabrics are found in texts from the Vedic and post-Vedic periods. Dye vats, along with woven and madder-dyed cotton fragments wrapped around a silver pot, were discovered from Mohenjo-Daro (circa 2500 to 1500 BCE). Spindles and spindle whorls were discovered in Indus Valley Civilization houses, indicating that spinning of cotton and wool was very common. Apart from cotton and wool, evidence of wild indigenous silk moth species from Harappa and Chanhudaro indicates the use of silk in ancient India around the 3rd millennium BCE. In fact, India held a global monopoly over the production of cotton fabrics for about 3,000 years—from 1500 B.C. to 1500 A.D. So sought after were these fabrics that they were traded for gold and silver.

Apart from silk, cotton, and wool, indigenous communities across India use a variety of fibers to weave clothes. Fibers such as hemp, jute, bamboo, banana, nettle, and several other plants and reeds were used to extract fibers. Even today, the Indian subcontinent is flourishing with diverse fibers, weaving techniques, tools, dyes, dyeing processes, and embellishments. Dyes derived from plants such as indigo *(Indigofera tinctoria*) and madder *(Rubia cordifolia*) were used in ancient India since the time of Mohenjo-Daro. Turmeric, henna, and safflower were also used as natural dyes and were traded to different regions such as Central Asia, East Asia, and Egypt, indicating the import of madder to Egypt and Mesopotamia. Indigo, also known as blue gold, was widely traded through both land routes and maritime routes to the west, central, and east Asian regions.

Apart from natural dyes, several other substances were used as mordants, fixing agents, and binders. Various tannin-rich materials such as myrobalan, gallnuts, pomegranate peel, and gum arabic derived from the acacia tree, were used as fixatives. Certain resins from trees were used to impart gloss or sheen to dyed fabrics. Beeswax or vegetable waxes were used to resist dye penetration in specific patterns in resist dyeing techniques.

These natural ingredients and processes were integral to ancient Indian dyeing techniques, enhancing the color vibrancy, durability, and aesthetic appeal of dyed textiles. They demonstrate the sophisticated knowledge and skill of ancient dyers in manipulating natural materials to achieve desired colors and effects on fabrics, maintaining a reverence for nature and her resources.

However, this is not the case with the modern textile industry, which is the second-largest polluting industry after oil, producing about 1.7 billion tons of carbon emissions annually. The World Economic Forum estimates that the global fashion industry accounts for 10% of global carbon emissions and is the second-largest consumer of fresh water. The dyeing and treatment process of textiles contributes 20 percent of industrial water pollution and uses about 20,000 different chemicals.

Compared to the modern textile industry, Indian Handloom Traditions are much less polluting due to their reliance on natural elements for dyeing, use of locally available fibers, and use of non-mechanized tools. Age-old weaving and

natural dyeing traditions of Indian Handlooms offer alternate sustainability paradigms. It also includes traditions of recycling to design innovative products.

Over a century ago, Mahatma Gandhi reminded his people, then struggling to overthrow colonial domination, that the earth had enough for everyone's need but not for anyone's greed. It was in this spirit that Gandhi moved hand-spinning and hand-weaving into the center of a movement for political and social freedom. It was his reminder to a nation imagining its own future of the inevitable tension between resources needed to improve the quality of life for the majority of citizens and the respect essential to sustain the well-being of nature's systems upon which the planet depends. This led to a revival of the handloom industry and today in India, the Handloom industry is the largest cottage industry. According to the 2019-20 Handloom census, with more than 3.5 million handloom workers, it is the largest employment generating sector in rural areas, after agriculture. The scale of creative and cultural activity in India and indeed throughout the subcontinent is unequaled, with a unique potential for influencing the global quest for a future in which the needs of people and the earth are held in a sustainable balance.

Ashoke Chatterjee
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Atul Bagai
Former Country Head, India
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Handloom Traditions

1

Ashavali Brocade

Gujarat

Ashavali brocade weaving is an elaborate and time-consuming technique; it takes a minimum of fifteen to twenty days to complete a sari, which is replete with patterning and gold zari and is considered a luxury product. Their richly enamelled look, dense patterning, and use of metallic zari yarns, because of which they fall into the genre of kinkhab brocade, or cloth of gold, distinguish Ashavali brocade saris.

The Ashavali weaving technique goes back almost six centuries. Even before the city of Ahmedabad was built in the fifteenth century by Ahmad Shah, the town based here was called Ashaval. The weave was named after the city. Here the artisans were known for their extravagant silk textiles in zari that integrated dense motifs with the zari. Patronage was principally from the region's royalty and nobility. The textile was worn either as saris or as patkas, or waistbands, and shawls for men. It was also used for royal canopies and other decorations. The tradition of up-cycling vintage Ashavali borders and pallus (the loose end draped over the shoulder) continues to be highly valued and is often detached from worn-out saris and reused on new saris and on odhanis (shoulder-mantles).

Believed to have been inspired by the brocade traditions of Varanasi through the connections between the migration of Gujarati weavers to the city and with their home town, Ashavali cloths were traditionally made by Khatri and Patel weavers. Only a few dedicated weavers in Rudrol, near Ahmedabad, now weave Ashavali brocade. The artisans weave rich brocaded patterns in a twill weave with the patterns in intense colours that include birds, flowers, animals and human figures, with yarns of different colours interspersed with zari. This is usually an all-over patterning though variations can also be limited to patterning on only the borders and pallu (end-piece) of the sari.

The parrot is a pervasive motif and is rendered in several forms including with the peacock, called mor-popat. The pallu is especially elaborate since the Gujarat tradition of draping saris gives the pallu pride of place, letting it fall to the front. The body of the sari can feature jaal (lattice), janglo (jungle), kaju phool (cashew flower), mor jaal (peacock lattice), sikka butti (coin motif), chaand taara (moon and star) or any of several other motifs.

Woven on jacquard pit looms, artisans use the twill weaving handloom technique for the sections with motifs or patterns. An artist designs the layout of a sari and its motifs on graph paper, which is then transferred onto hundreds of perforated cards that are punched and attached to the loom. The sari has a main body, two borders above and below, and a pallu comprising several detailed panels.

2

Balaramapuram Weaves

Kerala

About 20 km from Thiruvananthapuram, Kerala's capital, lies Balaramapuram, a renowned heritage weaving center celebrated for its cream-and-gold Kerala weave known as kasavu. The term kasavu specifically refers to the golden zari used in the border of these traditional textiles.

Historically, Balaramapuram specialized in weaving mundu, a draped lower garment worn around the waist, and settu-mundu, a combination of two pieces including an upper drape. Over time, the single-piece sari, known as pudava, also became part of its repertoire.

Balaramapuram stands as one of Kerala's oldest and most significant handloom hubs. It has been a site of experimentation and innovation, particularly in dyeing techniques and treatments where traditional practices intersect with Ayurvedic principles. Here, artisans blend over a hundred roots, barks, leaves, and flowers to create textiles that not only embrace organic methods but also incorporate medicinal herbs. This unique approach not only ensures sustainability but also imparts health-giving properties to the fabrics, enhancing their value beyond mere aesthetics. In 2010 it received GI tag.

In essence, Balaramapuram weaves embody a harmonious blend of cultural heritage, artisanal skill, and holistic wellness, making them not just pieces of attire but also carriers of tradition and well-being.

3

Banaras Brocade

Uttar Pradesh

Varanasi, also known as Benares, Banaras or Kashi, is a city on the banks of the river Ganga in the Uttar Pradesh state of North India. Varanasi the holy city of India and with a rich cultural history is home to traditional silk weaving on handlooms by the Ansari Muslim communities. It is a cottage industry that has survived and become globally renowned through ages. While the exact origins of Varanasi's silk industry are difficult to identify, it is found that the ancient Buddhist and Hindu texts refer to the city as a cotton-weaving hub. It was during the Mughal period, beginning of the 16th century, that silk weaving flourished here, influenced by the courts of the Persian masters.

It takes almost fifteen days to six months to weave a gorgeous piece of 6 yards Banarasi sari, based on the intricacy of the design. While the men weave on the looms, the women play a critical role in the preparation of the warp and the weft threads to make them suitable for weaving. The entire family is engaged in this cottage industry.

There are more than 40,000 weavers spread across several villages around the Varanasi city. The master weavers usually procure orders and provide job work to the smaller weavers. The independent stock is also maintained by the master weavers. Many designers have been working in different clusters of Varanasi weavers for years. Varanasi silk weaving is an iconic weaving tradition of India signifying pride and nationalistic appeal.

For generations they have passed on their craft from father to son. Varanasi saris are famous for their intricate brocade designs and zari embellishments making them perfect wear for marriages and festivals. Previously, the embroidery on saris was often done with threads of pure gold, but now it is not the practice anymore. In 2009, weaver associations and cooperatives together secured Geographical Indication (GI) rights for 'Banaras Brocades and Sarees'.

Weaving a Varanasi silk sari is a long process and involves several steps and specialized sub-industries around weaving. There are the graph makers who make the design on graph paper. The card punchers are also a specialized community who hand-punch hundreds of cardboard cards, as per the graph design, to be fitted on Jacquard. The yarns are dyed by the separate dyer communities, as desired by the weaver. After the cards are fixed on Jacquard and the yarns are loaded, the actual weaving process can start. The weaving is done on hand operated pit looms.

The threads are spun to spools with the help of a spinning wheel to prepare the spools to load to the fly shuttle, the threads that fill up through fly shuttle are called weft. The warp threads are spread lengthwise creating pulls and are rolled to the beam which is later fixed to the loom.

4

Bavanbutti

Bihar

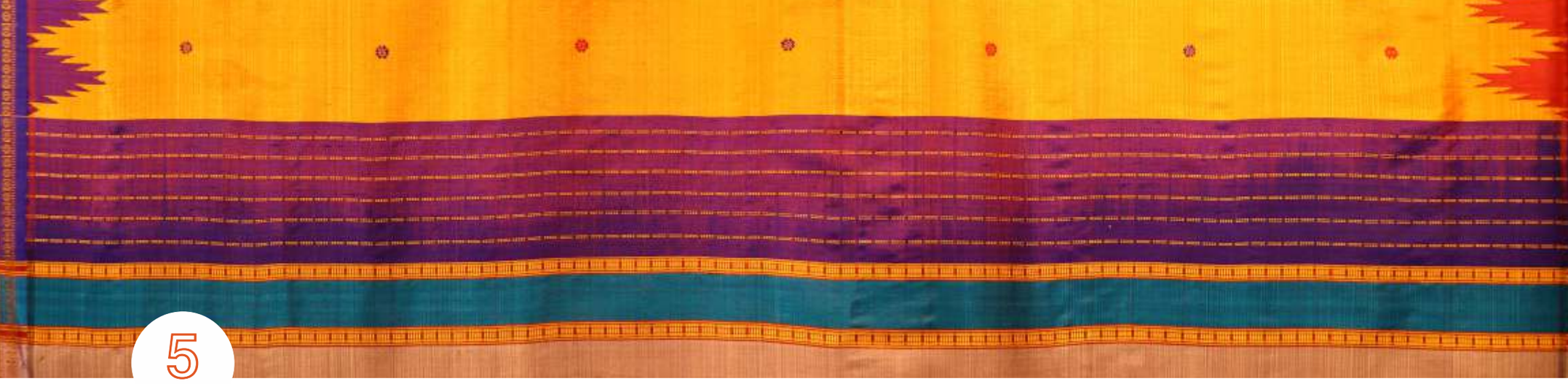
The Bavanbutti style of weaving has its origins in the ancient Buddhist city of Nalanda in Bihar. Unique for its extra warp and weft technique, this traditional Bavanbutti weaving style is now confined mainly to Baswanbigha, Nepura and Khasganj villages of Nalanda district. Although bavan literally means 'fifty-two' and buti 'motif', the term Bavanbutti has its origins in the region's legend, lore and traditions.

With increasing focus on sustainability, Bavanbutti handloom weaving, with its low carbon footprint and sustainable ecology, presents itself as a green alternative to conventional, synthetic and machine-made fabrics.

Much of its rich history has been lost to oral memory, though it can be safely assumed that the tradition is at least five generations old. This Bavanbutti weaving style was also unusual as the yarns used to make ornamental patterning were thicker than the yarn used for the rest of the sari, and often dyed in contrasting colors. These yarns were plied fifteen to twenty-two times more thickly than the rest of the yarn, thus creating a three-dimensional effect. Generally, a single motif is repeated fifty-two times, either on the pallu (the loose end draped over the shoulder) or all over the body of the sari. Motifs being geometrical or inspired by nature and often draw from the Buddha's life.

Over time, practitioners of Bavanbutti weaving have dwindled in number. Till as recently as the 1960s, the Bavanbutti sari was a ritualistic gift, exchanged during important events. No wedding was considered complete without a Bavanbutti sari. Therefore, customers often placed their orders well in advance with weavers, who sold their saris to individual buyers directly. Over the decades however, the traditional Bavanbutti sari has dwindled in quality and has suffered a loss in its motif directory. With only a few simple motifs now used in the patterning.

By the early 2010s, there was only one master weaver, Kapildev, in Baswanbigha village while Nepura village had another four or five weavers, and Khasganj village had only two weavers practicing the craft. Bihar was traditionally known for its cotton and silk saris, but the weaving styles in the state have diversified over the years. The shift began with the efforts of the artist and cultural revivalist, Upendra Maharathi (1908-1981) who worked closely with the artisan community in Bihar. Subsequent interventions by designers and craft revivalists led to the creation of a range of products, including stoles, dupattas (scarves), table runners, tablecloths, wall hangings, bedsheets, etc.



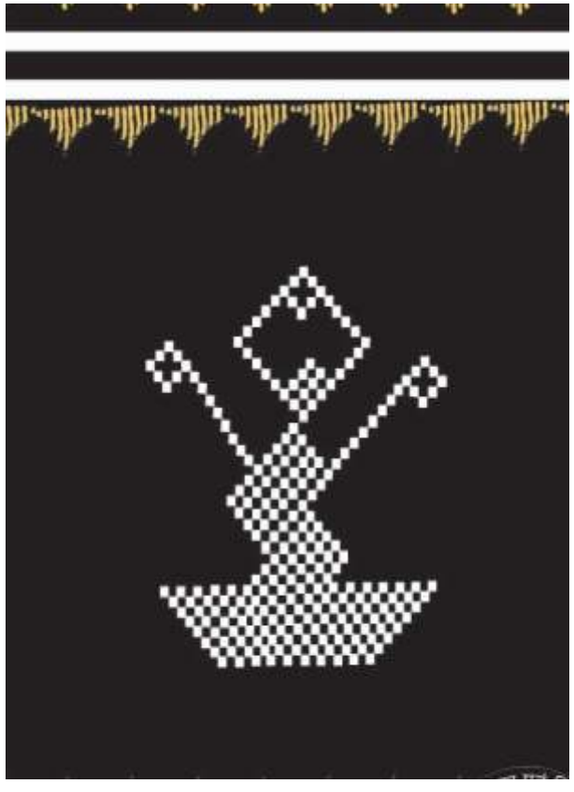
5

Berhampur Patta

Odisha

The resham or silk patta saree and joda of Berhampur are traditional weaves of Odisha. Berhampur is also known as the silk city of India, with the patta saree meant for women and the joda meant for men. The Berhampuri resham patta and joda are recognized for their patterning of temple spires or kumbha, particularly the typical phoda spires of Odisha. These weaves are also an important part of the textiles presented and worn by the deities Lord Jagannath, Balabhadra, and Subhadra at the Jagannath Temple in Puri.

By weaving designs inspired by temple spires and other traditional motifs, the tradition helps preserve and promote cultural heritage. This encourages local pride and connection to traditional practices, fostering a sense of identity and continuity among communities.The sustainability of Berhampuri silk weaving lies in its cultural preservation, economic viability for artisans, and the unique market appeal created by its distinctive designs. These factors together contribute to the long-term sustainability of the craft and its positive impact on both cultural heritage and local economies.



6

Bhagalpur Tussar

Bihar

India's illustrious tradition of Tussar production is a symbol of her tribal culture. The nucleus of the natural silk industry is in the Bhagalpur district of Bihar. Situated on the banks of the river Ganga, it was the most significant trade center for unique silk fabrics called Tussah or Tusar. Bhagalpur cluster ranks the second highest, next to Karnataka, in the production and exports of silk fabrics. Hence, it has been named the Silk City due to its popularity for Bhagalpuri silk.

Tussar silk is harvested from wild silkworms, making it more eco-friendly. The silkworm grows on wild trees - Sal, Saja, Oak, and Arjun. Thus it encourages the conservation of local trees as well. One interesting characteristic of silk gained from worms is that its color depends on the leaves the worms eat as well as the climatic conditions in the region where they are reared. Traditionally Tussar silk production didn't involve dyeing, and was only available in its natural colors – off-white, cream, copperish, golden-brown, and related shades. Tussar silk production is mostly a manual process, and is done locally making it energy efficient and low on carbon footprint.

The uniqueness of the Bhagalpur Tussar is attributed to its geo-climatic condition, which plays a crucial role in the cultivation of raw silk. As a result, Bhagalpur silk has an exceptional brightness and luster. Bhagalpur is an essential center for producing mulberry and Tussar. In the international market, it is recognized for its exports of silk furnishings. In addition, the skilled handloom weavers in this region produce a variety of silk yarns, from very coarse to delicate.

The traditional processes for rearing and degumming silkworms, and the manual reeling and twisting of yarn, are still used in Bhagalpur. The rustic finish of the Bhagalpur Tussar is due to the thigh reeling of yarn. Supported by women who form most of the workforce for reeling, they sit cross-legged on the floor, drawing 5-6 filaments on their thighs from the cocoons. The yarn twist is done by their left hand with a smearing of ash powder, oil, and starch.

The Tussar silk industry, from collecting cocoons to extracting and reeling yarn, is one of the most extensive decentralized rural-based economic activities after agriculture. The strength of this sector lies in its uniqueness of processes, less capital-intensive, usage of minimal electricity, eco-friendly, the flexibility of small productions, adaptability to market requirements, and openness to innovations.

Tussar silk weaving is carried mainly on pit looms, sometimes in fly shuttle frame looms to incorporate dobby or jacquard designs. The Bhagalpur cluster uses two kinds of finishing for the woven Tussar - it can be a Kundi finish, done with beating with a wooden hammer, or by giving a calendar finish through steam-heated rollers.

7

Bodo Weaves

Assam, Tripura, Manipur, Meghalaya, Nagaland, Mizoram, Arunachal Pradesh, Sikkim

Bodos are known as one of the finest weavers in the entire Northeast region. Long before the Mahabharata (which provides the earliest historical reference of Assam, then known as the Kamrupa kingdom ruled by the Narka kings), ancient civilizations have inhabited the fertile plains of the Brahmaputra valley. Among them are the Bodos who had spread throughout the region, from Coochbehar in North Bengal to Sylhet in Bangladesh stretching all the way to Tripura. Bodos are a rural community fully dependent on natural resources and practices, traditional occupations of agriculture, weaving, and fishing. Their handloom weaving heritage is very rich. Every Bodo house has a loom and all the women know the art of weaving, which is a skill passed on through generations since ancient times.

The sustainability of Bodo weaving is deeply rooted in its traditional practices and reliance on locally sourced raw materials such as Muga silk, Eri silk, and cotton yarns. This craftsmanship, passed down through generations, involves a meticulous process using simple bamboo or wooden tools for spinning, sizing, warping, and weaving. The weavers draw inspiration from nature, incorporating motifs like water hyacinth, tortoise, and peacock into their designs. By maintaining these age-old techniques, Bodo weaving not only preserves cultural heritage but also supports sustainable livelihoods within the community. The use of locally available materials and hand-operated tools minimizes environmental impact, promoting a harmonious relationship between craftsmanship and nature. This traditional approach ensures that each textile piece reflects the rich cultural identity and artistic prowess of the Bodo people, contributing to the sustainable development of the region.

The Muga silk, Tusser silk, Eri silk, Pat silk, and cotton yarns are the main raw materials used in their traditional handloom weaving for the production of different textile items. The weaving process involves many steps which are entirely done by hand. Tools used for weaving are simple and hand-operated, such as the spindle, spinning machine, warp drum or pegs, and a loom (loin or throw-shuttle). Most of these tools are made of bamboo or wood. The looms are also simple and easy to make. The possibilities of weaving patterns in a loin loom are unlimited, and the Bodo women can weave all types of designs with their simple looms.

The various steps of the weaving process include ginning, spinning, reeling, sizing, winding, warping, and finally weaving. Sizing is a coating of a lubricated mixture applied on the yarns to make the yarns stronger, rounder in shape, and uniform in diameter. The mixture is made with natural ingredients like rice powder, maize, wheat flour, etc. The Bodos dye their yarns using natural materials - leaves and roots of trees, sourced locally.

These women are experts in preparing different

colors. They derive red from Thekera (Garcinia pedunculata), Kundhi (Symplocos spicata), bark of Khawir (Acacia catechu), orange from wood of Achi (Morinda angustifolia), bark of Thembur (Garcinia xanthochymus), flower of Nahor (Mesua ferrea), seed of Sindur (Bixa orellana), shells of Bon Borondoi seeds (Crateva religiosa), Shefali flower (Nyctanthes arbor-tristis), and Manjistha (Rubia cordifolia); green from Bon Borondoi seeds (Crateva religiosa), leaf of Phutuka (Strobilanthes flaccidifolius), bark of Kusum (Baccaurea ramiflora), and leaves of Shobai (Phaseolus lunatus); yellow from Haldi (Curcuma longa), Kamaranga (Averrhoa carambola), sunflower (Carthamus tinctorius), roots of Ambada (Garcinia indica), bark of Thembur (Garcinia xanthochymus), jackfruit wood (Artocarpus heterophyllus), and flower of Palash (Butea monosperma); black from seeds of Bakula (Mimusops elengi), leaf of Phutuka (Strobilanthes flaccidifolius), bark of Jam (Eugenia jambulena), seed of Shelekha (Terminalia chebula), bark of Shomphreng (Psidium guajava), rind of Lemon and tender leaves of Dalim (Punica granatum). There are other natural materials for preparing blue, brown, etc.

The process includes grinding of the ingredients in Uwal (wooden grinder) and boiling in a big earthen pot. Then the yarns are soaked in this mixture for 2 to 3 hours for dyeing. The traditional Bodo motifs are inspired by nature – water hyacinth, spinach flower, tortoise, mountain, pigeon's eye, peacock, and fingers, to name a few. The typical Bodo colors are shades of yellow and red as the base, with green or blue as the accent, and floral patterns. Women mainly weave a dokhna, which is a traditional sari-like wrap worn by them or a gamcha, which is a wrap-around worn by the men. Their contemporary product range includes the traditional costumes of mekhela, chador, and saris, shawls, kurtas, dress material, cushion covers, and yardage.

Over the years, with changing markets and modernization, traditional practices have changed. Unlike previous times, nowadays the basic raw materials used are mostly acrylic. Cotton cultivation, yarn spinning, and dyeing were traditionally practiced, but gradually the weavers discontinued these activities because of frequent floods in the area, resettlement; and the easy availability of mill-made dyed yarns. Additional factors hindering the use of cotton include non-availability of good quality cotton on the one hand, and durability, 100% wash fastness, and easy to weave properties of the acrylic yarns on the other. These yarns are procured from local markets or from traders in Guwahati, most of which are supplied by Southern India.

Yarns are also sourced from NHDC (National Handloom Development Corp.), which provides the yarns at mill gate price. Because of the rustic, yet fashionable appeal of the traditional Bodo textiles, internationally renowned fashion

designer Bibi Russell worked with this weave to link it to high fashion. She contributed towards modern design and skills of marketing that would help Bodo women to sell their products with a premium label.

Because the Bodo community villages are part of remote rural areas, lack of proper transportation facilities and proper infrastructure development have been issues for bringing Bodo weaves to the national and international markets.Also, there are no common facilities for dyeing, finishing, packaging which would be important for building a sustainable enterprise with global business. Yarn depots or distribution centers need to be set in place, so as to streamline the raw material procurement process and to ensure and regulate availability, quality control, and price range of the yarns. This can also reduce the preference for acrylic yarns and promote cotton yarn usage for high-end products. Market adaptability and catching up with the fast-changing trends and tools of marketing are also critical to remain visible and relevant.

In order to empower Bodo women economically and socially, Bodo weaving was promoted as an avenue for women's income generation making them more independent. Aagor, a Bodo word meaning “motifs”, was registered as a separate trust located in the remote area of Rowmari in the Chirang district of Assam. It involved over a hundred women weavers, largely from the Bodo tribe. Reviving the traditional motifs, some of the best designers collaborated with the rural weavers to create fashionable outfits with strong traditional appeal. In 2007-08 the organization provided livelihood to nearly 400 tribal weavers.

Having made its debut with brightly colored wrap-around skirts, stoles, and jackets, Aagor quickly expanded its range to traditional Indian wear like kurtas, tops, pants, and even home furnishing. Every Aagor product bears a story of women empowerment and well-being. Some of the biggest handloom brands like Fab India, Mother Earth, and Tribes have been Aagor's clients. Many buyers get amazed at the quality of the products sold by a non-profit organization based in the remote, strife-torn Bodoland area of Assam that is run by the weavers themselves.

It is critical to support the weavers and their enterprise with multi-faceted resources so that they can revive and continue their traditional livelihood. The tremendous amount of ancestral knowledge of nature and local ecology that the Bodos carry through generations is vital to conserve and sustain for the revitalization of the craft and the weaver community. Such local enterprises based on local traditional skills, culture, knowledge, and resources are believed to be the future of a sustainable green economy.

8

Chettinadu Sarees

Tamil Nadu

Chettinadu saris, locally called Kandangi Sarees, were woven by the Devanga Chettiar weavers for the women of the Chettiar community. This rustic sari design has been prevalent for more than 150 years.

The original Kandangi Sarees were woven in thick, coarse cotton material which can endure the roughest of washes. The color palettes were in earthy hues of red, orange, brown, and colors of chrome and mustard. The signature design patterns were bold checks and stripes with contrast borders. The contrast borders used to be woven by a hand korvai in a three shuttle, but this technique has vanished.

Traditionally it used local cotton varieties, and the entire process – from growing cotton to preparing the final product was done locally which made it highly energy efficient, low on carbon footprint, and gave thrust to local livelihoods. Kandangi Sari can take rough wear and tear and is low on maintenance. In fact, traditionally old Kandangi Saris were used to make hammocks for young babies.

The textile industry in and around Chettinadu is hugely varied and divided into two segments - an unorganized or traditional sector which comprises weaving Kandangi (Chettinad) saris, handicrafts from palmyra, called the Kottans and Athangudi tile making. The second one is the power loom which makes terrible replicas of these saris in thinner cotton.

The 40-count coarse cotton yarns from the neighboring villages of Arupukottai and Paramakudi made up this rustic sari in the yesteryears. Chettinadu saris were woven thickly for two reasons; the aachis, women folk, would drape this sari without an underskirt in a regional style drape called “Pinkosuvam” and the sari lasted longer with a thicker count of yarn. The original designs in Chettinad would have a double-pallu or mundhanai on either side of the sari so one could wear it both ways. For the Chettinad weave, the importance of demand creation for the original quality will go a long way in ensuring its sustainability.

9

Chindi Durries

Uttar Pradesh, Maharashtra, Madhya Pradesh

Chindi durries are floor coverings, mats, and rugs woven from leftover cuttings and shredded cotton fabrics. They are hand-woven on a horizontal loom with a warp of spun cotton yarn and a weft of old shredded cotton fabrics (chindi). The raw cotton yarns are procured from mills, while the scrap cotton fabrics are picked up in bulk from factories or markets, shredded into small strips, and organized into separate piles, color-wise, for weaving. Dyeing is sometimes done on the cotton warp chindis to add coordinated colorways. The dhurrie-making process is flexible, and the warp threads are attached to the horizontal loom with two wooden beams that can be adjusted to the size of the durrie required, allowing for the creation of rugs in various sizes. As the scraps may have a restricted length, they are inserted into the warp by the weavers with their fingers, according to a set pattern on a graph.

The word "Chindi" literally means "rags". Thus, the tradition of Chindi durrie making is an example that showcases one of the ways to give new life to old discarded textiles. Moreover, it has the potential to provide skill-based livelihoods to women while addressing the burgeoning problem of textile waste from household discarded waste or scraps resulting from the textile industry. Interestingly, the technique of weaving Chindi durries is now being used to weave various products such as bags, mats, and jackets out of waste plastics.

The weavers use a claw-like tool in the shape of a hand, called the panja, to keep the yarns tight while weaving. At least two or three warps have double chindi to avoid any gaps in weaving. Chindis are rotated around the warp bundle of three or four warps, on the two corners, at the beginning and end of each row. A little trimming is done after weaving has been completed. The durries are then washed and finished.

These durries are mostly produced by rural women in Maharashtra and Uttar Pradesh and are also made in certain parts of Madhya Pradesh. The Chindi durries are identifiable by their vibrant mix of colors that appear in stripes or geometric patterns. No two rugs are exactly the same. The Chindi durrie is an important example of the age-old Indian practice of recycling textiles. Although machine-made carpets have captured a large share of the market for traditional Indian hand-woven rugs, the relevance of Chindi durries has increased in recent times, especially because of their eco-friendly features of showcasing recycling and reuse. This creative industry also generates local livelihoods for rural women. As lifestyle brands and international markets are trying to shift towards the sale of sustainably produced products, many designers have intervened to introduce innovation, resulting in highly attractive Chindi durries of different sizes, designs, shapes, colors, and uses, thus creating new consumers and buyers. Chindi durries are also being innovated with plastic waste, resulting in very bright and long-lasting durries.

10

Eri Silk

Assam

Eri silk is one of the purest silk forms found in Northeast India. The word Eri is derived from the Assamese word erranda, which means castor. The Eri silkworms feed on the castor oil plant leaves, and their cocoons have an open end. The woolly white silk spun from the cocoons without killing the silkworms is called the Ahimsa silk.

Eri silk is always spun and not reeled like the other silks. Since it was a product obtained through non-violence, Buddhist monks world-wide prefer this silk. The texture of the Eri silk is a little loose and coarse because it is spun from pierced cocoons. However, it has the dual advantage of being isothermal and a moisture-absorbent fabric.

Eri Silk is known as non-violent or Ahimsa silk, as unlike other silk it doesn't require the killing of the pupa within the cocoon rather broken cocoon after the moth emerges out is used for hand-spinning the silk. Due to the requirement of limited space for rearing of the silkworm, it provides sustainable green livelihoods to remote tribal communities and especially women, as a household cottage industry. Breathability, biodegradability, and low carbon footprint are some other key sustainability aspects related to Eri silk production.

Eri silk is the most respected fabric of the local tribal people of the Northeast. In other silks like Mulberry, Muga, and Tussar, the moth is boiled to extract the fiber. However, in Eri silk, the moth emerges peacefully out of the cocoon, and then the yarn is spun. Of the four varieties of silk produced in India, Eri silk occupies the second place after Mulberry in its share of total silk production. Assam, the gateway state of Northeast India, has been recognized as the leading producer of the nation's total Eri silk.

Women dominate the spinning and weaving of Eri yarn. The spinners of the region practice a slow method of spinning silk with a spindle. Eri silk spinning follows the pillars of the Circular Economy - Design out waste. This principle means how waste as raw material can be dismantled and reused. No part of the cocoon leaves a biological trace.

Mostly dyed in natural dyes like turmeric and lac dyes, the Eri silk confirms the ethos of a natural, biodegradable, artisanal product that responds to different aspects of sustainability.

11

Garad-Korial Fabrics

West Bengal

Garad derives from 'gorad' meaning 'white' or 'spotless', and the Garad-Korial silk weave is used for both women's saris and men's dhotis (sarong-like lower garment). Worn on ritual occasions, the Garad-Korial has a base of natural, undyed mulberry or tussar silk yarns that are woven with deep red paisley (kalka) and red borders. The red and white with the kalka motif symbolize prosperity and fertility.

In the weaving of the Garad-Korial sari, the Korial technique lies in the joining of the pallu and borders to the body of the sari by overlaying the yarns on the loom. This process requires two weavers to operate the loom. This special border and pallu are equally red, both on the outside and inside.

The Garad-Korial sari, also known as the laal paar sari, is considered customary wear at the Sindoor-Khela ceremony during Durga Puja, the Bengali community's most auspicious festival. It is also worn at weddings. In the past, the Garad-Korial weave was worn during rituals by zamindars (landlords) and others who draped themselves in Garad-Korial dhotis when performing religious rituals.

Murshidabad district of West Bengal specializes in this weave, in which silk yarns are woven in a tight, close weave that imparts a fine texture to the final product. Its light weight makes the sari or dhoti easy to drape and hold its shape.

While there are several variations of the Garad-Korial sari, it usually comprises a red border set against the natural ground body with red paisley motifs on the pallu (the loose end draped over the shoulder) along with red stripes. The body of the sari can be plain or interspersed with paisley or other motifs, also in red. Similarly, the borders can be plain or woven with paisleys in deep red.

While Garad saris are readily available in the market decorated with traditional patterns, it is the Korial technique of the Garad-Korial saris that is becoming rare and needs sustenance. Garad-Korial saris are woven on throw-shuttle pit looms. Some of the patterned elements on these saris are made with additional pairs of healds. The paisleys in the sari's pallu are woven with a jala pattern harness called naksha in Bengal. The extra-weft silk for the naksha motifs on the body of the sari is woven with separate nalis, or small shuttles, for each buti (motif). These shuttles work only in the area of the pattern when making motifs, but from one end of the width to the other, along with the main shuttle, when making the cross border.

What is distinctive about the weaving of the Garad-Korial sari is its Korial technique, as mentioned above: a unique way of joining the border and pallu to the body of the sari. This weaving cannot be done by a single weaver because the end yarns are interlocked. Three shuttles are used to make the weave: two handled by one weaver and the third by another.

12

Ghicha Silk

Chhattisgarh, Jharkhand, Bihar

Produced in the states of Chhattisgarh, Jharkhand, and Bihar, Ghicha silk yarns are derived from damaged or pierced cocoons that are not suitable for the regular reeling process of Tussar silk. These coarse, untwisted yarns are spun manually using a charkha/spinning wheel or through thigh reeling. This artisanal method imparts a unique thickness and natural texture to the silk, making Ghicha yarns ideal for use in the weft during fabric weaving.

Ghicha silk is hand-reeled from the cocoons of wild Tussar silk moths (Antheraea mylitta), thriving in forested habitats with minimal agricultural intervention. The cocoons are typically harvested after the moths naturally emerge, thereby supporting biodiversity. Moreover, Ghicha silk maximizes the use of leftover cocoons from Tussar silk production, effectively minimizing waste and promoting ecological stewardship.

The textile industry is notorious for its high water and energy consumption, as well as its generation of waste, effluents, and pollution. Ghicha silk yarns exemplify a net-zero production approach, starting with their origin as remnants from discarded cocoons. This sustainable production model underscores the environmental and social benefits inherent in indigenous design and manufacturing practices.

13

Gongadi Sheepwool blankets

Telangana

The Gongadi blanket is woven from the indigenous wool of the Deccani black sheep and is part of the cultural heritage of the Kuruma shepherding community. Deriving its name from the region ie 'Dakkan' or the Deccan plateau. In Telangana, the sheep is also called nalla gorre, or 'black sheep'. Gongadi blankets were used by village communities in this region by the Kurumas, the traditional shepherding community that reside in the semi-arid regions of Telangana.

In Gongadi culture, wool from indigenous Deccani black sheep holds profound cultural and practical significance. The use of this wool in Gongadi weaving not only preserves traditional craftsmanship but also promotes sustainable practices. Gongadi blankets are renowned for their ability to resist water naturally due to the wool's coarse texture, eliminating the need for chemical treatments. This sustainable approach in Gongadi weaving combines cultural heritage with eco-friendly materials, showcasing a commitment to environmental stewardship and local craftsmanship.

Coarse textured, the Gongadi blanket is effective in providing protection from the winter cold, and also gives shelter from rain, as its texture doesn't absorb water easily. The many uses of the Gongadi blankets includes being used as a floor spread, as a blanket, a mantle, to carry food, grain, implements and even newly born lambs. With the advent of low-priced blankets, Gongadi blanket weaving has also declined. In addition, the declining population of the sheep has also impacted production.

Anthra, founded in 1992 by a team of women veterinarians, is working in this region to encourage the conservation of breeds and re-establish traditional systems. Their work with Gongadi blanket-weaving is part of their effort.

14

Guledgudd Khana

Karnataka

Guledgudd is a cluster of villages in the Bagalkot district of Karnataka state. The specialized and traditional product in this cluster is Guledgudd Khana, the fabric woven especially for use in cholis/blouses. It received GI tag in 2015. The fabric has a ground warp, border warp, and extra warp, each requiring a different yarn count. The motifs woven in the fabric commemorate cultural and religious icons like the tulsi leaf, theru (a chariot), ane hejje (elephant footsteps), among many others. The khana is woven as yardage, as a mix and match blouse, for daily wear in both Karnataka and Maharashtra.

With technological interventions, the width of the loom has been expanded so that the fabric can now be used for purposes other than blouse pieces. Thus, today it is a versatile fabric for making furnishings and accessories like cushion covers and other items. Both men and women weave on the loom in a gender-equal way. However, they face severe competition from low-priced look-alike products of the powerloom. The future of this tradition depends on awareness and demand creation for crafts-manship and the effective enforcement of measures to protect artisans from the threat of mass-produced fakes.

15

Ikat

Gujarat, Odisha, Andhra Pradesh, Kashmir

The Ikat tradition of tie-dye and weaving is practiced in various countries of the Asia-Pacific, Latin America, Middle East, West Africa, and Europe, with regional and cultural differences linked to the rich culture, mytholog cal beliefs, and everyday lives of the makers. In India, its antiquity can be dated back to the 2nd century BCE to about 480 CE in its depictions in the Ajanta rock-cut mural paintings.

The process involves tying portions of the yarn and dipping them in a dye bath so that the dye penetrates only the untied portions while the tied portions retain their original colors. This tie and dye process is repeated multiple times to create complex, multi-colored patterns. When the dyeing is completed, the bindings are untied and the yarns are ready for weaving. The designs of Ikat are formed on a fabric either by the warp threads or the weft threads. If the tie and dye design is done in either the warp or weft, it is called 'single Ikat'. If the tie and dye is done on both, it is referred to as a 'double Ikat'.

The GI tag has been accorded to several Ikat traditions. This includes Pochampally Ikat, Orissa Ikat, Sambalpuri Bandha, Patan Patola, Rajkot Patola, and Telia Rumal. An additional recognition has been accorded to Pochampally village which features on the UNESCO tentative list of world heritage sites under the "Iconic saree weaving clusters of India".

The Ikat weave appears exactly the same on either side of the fabric. Several regions are well known for their Ikat technique in India with each being recognized by their own title. Patola in Patan in Gujarat, Bandha in Orissa and Pagadu Bandha in Andhra Pradesh, each bearing a distinctive identity. There are additional traditions and variations of Ikat practiced that would include for instance the process followed in Rajkot in Gujarat, the traditions of calligraphic weaving with the Ikat technique in Odisha and the Ikat weaves on Pashmina and wool in Kashmir.

Customarily, Ikat weaving in India has been part of rural cottage industries where entire families are engaged in producing the textiles that require long hours of skilled and technical handwork. Women usually prepare the yarns for processing, tie the yarns with knots according to the paper or graph design, and untie the knots after dyeing. Men are involved in the other stages of production including weaving.

Stronger branding and promotion of handmade Ikat is essential, by creating market awareness about its highly skilled and complex process, its exclusivity, the mathematical genius of its makers, and the fact that it is a sustainable and dignified source of livelihood for village industries, making those completely selfsufficient local rural economies.

16

Ilkal Sarees

Karnataka

The saris made in and around the weaving villages of Ilkal in Bagalkote town of Karnataka are referred to as Ilkal sarees. The Ilkal sari industry has a rich weaving tradition, and the striking uniqueness is the way the pallu design is woven in solid contrasts. Ilkal was an ancient weaving center where the weaving seems to have started in the 8th century AD. The growth of these saris is attributed to local patronage, as well as the availability of local raw materials that made its production easy. Ilkal is a large cluster of weavers with thousands of families practicing the craft.

Natural dyes used in Ilkal sarees are often derived from various plants. One common source is the indigo plant, which produces a deep blue dye. Another example is the use of turmeric for yellow hues. Additionally, madder root is used for red shades. These plant-based dyes contribute to the eco-friendly production process of Ilkal sarees. Unique techniques like Tope Teni and Kasuti embroidery are preserved for future generations. This supports sustainable livelihoods and income generation within the community, reducing dependency on external sources of employment.

Ilkal sarees are woven using cotton warp on the body and art silk warp for the border and art silk or pure silk warp for the pallu portion of the sari. The peculiar characteristic of the sari is joining the body warp with the pallu warp using a loop technique which is locally called Tope Teni. This technique is used exclusively for Ilkal saris. Another unique feature of Ilkal saris is its ornamentation with a local embroidery form called Kasuti.

Traditionally Ilkal saris are woven on pit looms with the combination of three types of different yarns, namely silk x silk, silk x cotton, and art silk x cotton. Usually, two weavers sit on a loom to weave. It is a home-based industry mainly involving the women of the community. To weave one sari on a handloom, it takes about seven days.

In the past, Ilkal saris were used for daily wear, but today, only elderly women (fifty plus) are found wearing it on a daily basis. The younger generations wear traditional Ilkal saris only during festivals and on special occasions, reducing the demand for Ilkal saris among the young generations.

To address these challenges, the Smart Handlooms Innovation Centre at the National Institute of Design, under the Heritage Textiles project, undertook an initiative to research the cultural relevance of Ilkal and promote its diversification and rejuvenation along with introducing sustainable production processes to strengthen their local economy. The efforts towards contemporizing Ilkal for young buyers without compromising its traditional exclusivity was a way forward for the sustainability of this craft and its makers. Ilkal received its GI tag in 2007.

17

Jamdani

West Bengal

Jamdani is a heritage weaving tradition originally made of fine muslin adorned with double weft designs. With a history dating back centuries, it reached its peak under the royal patronage of the Mughal emperors. During Emperor Jahangir's reign (1605-1627), the flowered muslin became known as 'jamdani'. Originating in Dhaka, Bangladesh, the Bengali Jamdani and muslin industries declined under British colonial rule due to the influx of cheap industrial textiles.

This weaving tradition is deeply rooted in the villages of undivided Bengal. Weavers share a common cultural bond, viewing Jamdani weaving as an expression of their cultural and social identity. Despite poor pay, they take pride in their skills and heritage.

Jamdani weavers employ a meticulous method where each motif is meticulously crafted by adding extra weft threads to a plain weave foundation, ensuring precise control over yarn usage. This artisanal process significantly minimizes wastage compared to mechanized weaving techniques.
Another distinctive aspect of Jamdani weaving's sustainability is its contribution to biodiversity. Traditional weavers often utilize locally grown, heirloom cotton varieties that are naturally more resilient to pests and diseases, unlike genetically modified or hybrid cotton varieties.

Post-Partition, weavers from Bangladesh, particularly Tangail, migrated to West Bengal, settling in Kalna and Nadia, where they developed the khadi-muslin industry, creating super fine threads for 500-count yarn. Today, the districts of Nadia and Bardhman in West Bengal, as well as Sonargaon and Rupshi in Bangladesh, are renowned for their Jamdani industries.

Jamdani weaves combine high-level skills, aesthetic color palettes, and sophistication from earlier times. Although the weavers struggled without patronage and market loss, especially in the 1900s, Jamdani remains one of the finest and most labor-intensive forms of handloom weaving, associated with luxurious wear. The motifs are created with a non-structural weft, in addition to the standard weft that holds the warp threads together. Each motif is added separately by hand using fine bamboo sticks and individual spools of thread, following a graph paper pattern placed underneath the warp.

Both men and women engage in the pre and post-loom activities, making it a family-based industry. The fine cotton yarn used for the base fabric is starched with rice-starch for strength. The yarns are prepared on spools or bobbins for warp and weft weaving. Frame looms are used, and the warp is prepared on a warping drum. Dyeing, mostly manual, is done in small dyeing units to meet weavers' needs.

Jamdani patterns typically feature geometric, plant, and floral designs. The fabric enjoys

widespread popularity and is found in textile collections of museums worldwide, such as the Philadelphia Museum of Art, the National Museums Liverpool, the Cooper-Hewitt, Smithsonian Design Museum, and the Victoria & Albert Museum in London.

In 2013, UNESCO inscribed the traditional art of Jamdani weaving on the Representative List of the Intangible Cultural Heritage of Humanity on behalf of Bangladesh. In 2016, Bangladesh received GI status for Jamdani weaving in Dhaka, and India is expected to grant GI status shortly.

Jamdani has recently undergone a revival to suit contemporary markets. Its popularity has increased due to diverse colors and applications, making it sought after globally for its fine and aristocratic feel. Both saris and garments, created by renowned design labels, add high premium value to this breathable textile, with smaller products like stoles also being developed.

Jamdani weaving is considered sustainable due to its environmentally friendly surface design methods, using skilled human hands instead of chemical or technological finishes. Traditional weavers used locally produced fibers and vegetable dyes, although these have largely been replaced by chemical dyes. The cotton from Gossypium arboreum var. neglecta, known as phuti karpas, was historically used for its tensile strength but was eliminated by British colonial policy, ceasing the production of fine Dhaka muslin for nearly 400 years.

18

Kani Shawls

Kashmir

Kani shawl is one of the most exquisite and extraordinary handloom traditions of India. This famous traditional loom woven shawl has its origin in Kanihama, a small village near Srinagar. The art of weaving Kani shawls was first brought to Kashmir in the 15th century by Persian and Turkish weavers, who introduced it to Ghiyas-ud-Din Zain-ul-Abidin, the eighth sultan of Kashmir. Since then, this art form flourished in Kashmir. This craft gets its name from the tools used to weave it. The word 'Kani' refers to wooden bobbins or small sticks or needles used to weave these famous shawls. Sometimes, even 50 or more Kanis are used with different colored threads for a single weft design, such is the intricacy of its patterns. The craftsmen can only weave a maximum of one inch in a day after working for 5 to 7 hours. It may take anywhere between 3 to 36 months to weave a Kani shawl using hundreds of spools or Kani. It is woven with pure pashmina yarn on a natural, almond-colored base, or a cream-colored base with multicolored floral patterns, creating a striking offset.

The undercoat of the Pashmina Goats, that they shed in the spring naturally, is collected by the local artisans. The soft hairs are separated and cleaned for yarn spinning. The artisans, mostly women, hand spin the hair to make the delicate Pashmina wool in their Charkhas. The yarns are then loaded on the cane or wooden sticks or the Kanis and the spools are used to weave the shawls. Kanis are made of a forest wood called 'poos tul'. A designer called the Naqash first creates the main pattern of the shawl by drawing the design with colors on a graph paper. The weavers then weave the design and patterns shown on the graph. While weaving, the weavers follow a code called 'Talim' which is also created by the Naqash as specific instructions to the weavers about the number of wrap threads to be covered by any particular colored yarns. Each color has a particular code. The weavers keep the coded sheet in front of them while weaving. The exclusiveness of this process lies in the fact that the design is embedded in the weaving process.

Kani shawls have a GI tag and are great examples of the exquisite craftsmanship of India and the rich traditions of handlooms. The skill is passed on through generations and the knowledge is well protected by the community through the experience and expertise of the Naqash who creates the Talim and the weavers who know how to decode it. Cases of such high human creativity and skills, such as Kani shawl weaving, completely based on the locally available raw materials and the climate are becoming rarer and need to be sustained. In the current times, it is not only important to ensure transmission of skills and marketing of original Kani weaves, but also to conserve the local biodiversity and environment for continued supply of good quality raw materials.

19

Kanjeevaram Silk

Tamil Nadu

Kanjeevaram silk weaving has its origin in a small town of Kanchipuram, Tamil Nadu. It is believed that weavers of two distinct communities - the Devangas and the Saligars came all the way from Andhra Pradesh and settled in the village of Kanchipuram and started weaving Kanjeevaram silks.

The exclusivity of Kanjeevaram sari lies in its rich gold borders and dense brocades in contrasting colors and have earned a reputation for their luster, soft texture, durability, and gorgeousness. In a genuine traditional Knchipuram Silk Saree, the body and border are woven in contrast colours by interlocking the weft, using three shuttles, which is called "Korvai". The contrast colour in Pallu is achieved by using "Petni" technique. The joint is woven so strongly that even if the saris tear, the border will not detach. That differentiates the Kanjeevaram silk saris from other saris.

This weaving tradition is more than 150 years old. Owing to the royal features of these silks, this tradition has also been linked to Hindu mythology. It is said that the Kanjeevaram Silk Weavers are the descendants of Markanda, who was known for weaving clothes for the Gods themselves. The Kanjeevaram fabric is considered to be one of the most durable and strong textiles as it is made using 2 ply of twisted silk (i.e 4ply) in warp and 3 ply of twisted silk (i.e 6 ply) silk in weft. Hence, a Kanjeevaram saree can weigh 750 grams to 1000 grams, and even 2 kilos, due to their rich thread counts.

The saris are entirely hand-dyed and handwoven. Authentic Kanjivaram is woven using pure mulberry silk with three-ply, and thick zari forming unique and intricate designs. The local communities are mostly engaged in different production processes such as silk weaving, warping, winding, and dyeing.

The border and pallu of the silk sarees are dyed in a single color, and the body has a contrasting color. The off-white silk yarns are first dyed as per the desired colors and then dried well. Red, green, blue, and mustard are the popular colors. The colored silk yarns undergo winding, wherein the yarn bundles are first wound onto a traditional bamboo spool. Then, the yarn from these spools is further wound onto pirns with the help of a Charakha. These pirns are used to insert into shuttle which is used to weave the weft.

Three shuttles are used in weaving a Kanjeevaram silk sari. After warping and loading the warp beam into the loom, the weavers start weaving. About 3 to 5 artisans may be required to complete the warping process. The warp thread count ranges between 5000 to 6000. The length of the warp is 18 meters which can make three saris of 6 meters each. Weaving is done on the pit looms. The weaver interlaces the silk threads of weft and warp and takes nearly 4 to 5 days to complete one sari.

In the current times, technology is also used in the production process of the Kanjeevaram silks. Computers are being used to create the design and transferred to punch cards, which are attached in the form of a chain and loaded into the jacquard machine fixed to the loom, that makes the design weaving simpler and more time-saving.

Intricate border and pallu designs are woven with beautiful motifs with high aesthetics. The most popular motifs used in these saris are inspired from temples of Kanchipuram. Other motif patterns include flowers, leaves, fruits, birds like Swans, Parrot, the peacock's eye. The jasmine motif is traditionally used on the body of the sari. Traditional products include saris and Pattu langas- skirts for teenage girls.

Kanjeevaram silk sarees was GI registered in 2006, and also carries the Silk Mark certification. However, challenges and threats to this weaving heritage continue owing to several factors. With the prices of pure gold zari soaring high, the weavers are forced to use lower quality imitation zari that affects the quality of the saris. A saree woven using pure silk and zari can be very expensive and be priced between Rs 7000 and Rs 1,50,000. In contemporary markets, the demand for such high priced, heavy saris is going down and consumers prefer lighter saris with simpler designs.

Traditionally, a Kanjeevaram sari is considered a family treasure gifted to the daughter during her marriage and then preserved and passed on through generations. This way, the sale of real Kanjeevaram saris cannot scale up. Also, exports are low because of the type of the fabric which has limited demand outside. Hence, the weavers have started diversifying not only products and designs but also changing materials to reduce the cost and price. The gold and silver content in zari is being reduced. Powerloom saris pose another huge threat to the handwoven Kanjeevaram, the latter being much more expensive than a powerloom product, and yet customers are mostly oblivious to the authenticity of the textile. With so many changes happening within the local industry, the reputation of the real Kanjeevaram weaves has been negatively affected, with ideas of adulteration of the tradition, process, and product. Hence, many weavers have no other choice than to leave their weaving profession and migrate to cities and towns for other jobs. Protection and promotion of authenticity of Kanjeevaram weaves, as well as sustaining such a large local industry based on inherent specialized skills are of utmost importance for establishing a sustainable creative economy in the state.

20

Kasavu

Kerala

A traditional Kerala sari is commonly known as Kasavu locally, which is typically a handwoven cream-colored sari with a gold border. It has been the traditional attire of women in Kerala, embellished with the beauty and charm of golden borders on plain white mundum neriyathum - a two-piece garment. Kasavu saree is woven mainly by the Devanga Chettiar community who had migrated from Mysore many years ago to settle in Kuthampully for weaving for the Raja of the Kochi Palace. About 2000 weavers from this community continue to practice this weaving.

The minimalist and sophisticated design of the traditional Kasavu saris is apt for the current times when buyers are becoming more conscious of green production and more eco-friendly products. One unique sustainability aspect is that the locally sourced cotton, and as the saris are cream-colored there is minimal use of colors for dyeing, maintaining purity of the tradition and tradition. In a country full of innumerable patterns and bold colors, Kasavu sari stands out and is a comfort to the eyes.

The traditional two-piece attire has evolved over time and women now prefer to wear a single-piece sari. Traditionally, the color of the blouse worn with the sari determined the age and marital status of the woman. The young spinster girls wore blouses of the green color, and the married middle-aged mothers wore blouses of the red color. Kasavu is made with pure gold, or copper-coated or artificial thread. Mostly simple line designs are found at the bottom of the sari and small peacock or temple motifs adorn the pallu.

The traditional Kasavu mundum neriyathum was worn as an everyday attire and also on festive occasions. Traditional Kasavu sari is now mainly worn on all auspicious occasions. With time, these saris have undergone changes and have diversified. For example, instead of the golden borders, often different kinds and colors of zari are used to render a 'reshmi' style for enhancing the more modern appeal of the sari. The newer versions are found to have red, green, orange, etc. colors along with gold, to make them look more attractive.

The saris are handwoven using cotton and zari threads. The cotton yarn and the zari threads are processed for weaving and set on the loom to the required length. At Kuthampully, the weaving is done with the controlled mechanism of the Jacquard for the creation of the designs and patterns. Sometimes the woven sari is taken for embroidery or printing for further embellishment which are newer trends.

Today, powerlooms are fast replacing handlooms but the machine-made fabric differs in texture from the original. However, since production on a mass scale is possible and at a reduced cost, it is more lucrative to sell powerloom Kasavu saris thus threatening the sustainability of the handloom weavers. There is

a need to promote the associated cultural legacy of the traditional Kasavu saris to make them more appealing and sought after for the new age customers. Kerala is also a flood-prone area and the floods of 2018 had badly hit the livelihoods of the weavers, damaging the looms and stocks that led to a huge loss for the weaving communities. Climate change and natural disasters are inherently linked to the survival of rural creative economies in India, as these livelihoods are completely based on local resources and regional climatic conditions. Hence, a balanced rural-urban development is essential.

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Khandua Sarees

Odisha

Historically, Nuapatna, a small village in the Tigiria block of the Cuttack district in Odisha, is well known for its tradition of weaving the Khandua. Weaving calligraphy verses of the Geet Govinda, written by the great poet Jayadeva, these textiles are offered to the Lord Jagannath Temple in Puri.

The ikat yarn tie-dye technique involves pre-dyeing yarn before weaving, which reduces dye consumption compared to dyeing the finished fabric. This conserves water, energy, and dye materials, promoting resource efficiency.

Skilled weavers wove these temple textiles as Sevakas (disciples) for Lord Jagannath (Lord of the Universe), Devi Subhadra, and Lord Balabhadra (the sister and brother of Lord Jagannath). These woven calligraphic weaves came to be known as Khandua Pata. Now woven as sarees, stoles, and hangings, they are coveted textiles requiring highly skilled weavers who are adept in the ikat yarn tie-dye technique.

22

Khes Double Cloth

Haryana

Khes is a traditional weave of Panipat, with a typical feature of a double-cloth weave with cotton yarn, making them thick enough to be used as a shawl or a wrap, although they were more popularly used as a bedding material. Panipat was once famous for Khes weaving and was called the 'city of weavers'. The Khes developed centuries ago during the Mughal period to meet the demand for cotton blankets, an important item of export at that time. The weaving craft of Khes in Panipat came from West Pakistan, along with the weavers after the partition of India in 1947. The north-western part of the country, particularly the Multan Division of undivided Punjab before partition, was known to be the birthplace of Khes.

Traditional Khes weaving used hand-spun yarn made locally from desi varieties of cotton, grown locally. These short-staple desi varieties require no pesticide and fertilizers. Silk was also locally sourced. Yarn was colored using natural dyes. Thus the Khes weaving tradition was highly energy-efficient, conserved local biodiversity, and provided livelihood to local artisans.

For generations, women residing in the villages of Punjab, India, have woven the Khes as a part of the trousseau they would take with them to their future homes. Their bold, harmonic, and imaginative color patterns made them attractive wraps or spreads. Khes weaving was originally a household craft, exclusively done by women as part of their culture and tradition. It had very little commercial value.

Each weaving cluster has had its own distinct tradition as is visible in the design and color scheme. The Multani Khes generally has a bold, two-color geometric pattern with similar motifs on both the vertical and horizontal borders. Traditionally, the most popular color scheme used to be indigo and white. Combinations of mustard and black, yellow and orange, and green and orange are common.

Jhelum and Jhang prefer green and red, and yellow and black, patterned with geometric forms, floral motifs, or combining both. In the Khes woven in Sukkur, Gumbat, and Nasarpur, the main field is filled with tiny patterns, usually a diamond enclosed in a box and crossed with a third color. The wide horizontal borders are filled with bolder patterns alternated with vertical stripes. They are intricately woven, composed of many colors and create an attractive contrast to the overall Khes design.

Earlier they were produced on smaller looms, and two or three widths of fabric were stitched together to create a larger width. Khes are traditionally woven in pairs and stitched together to create a 66-inch width and three-yard length. Originally, silk was used, embellished with reversible geometric motifs.

Soon after the partition of India and the displacement of huge numbers of people, the newly-formed government set up a scheme to

resettle the displaced weavers in the then small town of Panipat. Khes weaving took root and flourished under the direction and leadership of two master weavers, Narayan Kaul and Govindlal, who introduced new and innovative complex patterns that were poetically named chandni gulbahar or the moonlit rose-red, laila-majnoo, gol-chakkar (squared circle), and other equally evocative labels. Those pioneering developments continued to take place and till the late 1980s, over 250 looms were dedicated to the weaving of the Panipat Khes, much celebrated across the country.

Khes continues to be woven with traditional geometric patterns on a pit loom using twill or plain weave. The main field is filled with small repeating patterns, usually a diamond, a triangle, or a polyhedron enclosed within a square. The end borders are white and combine a number of narrow and broad stripes in complex permutations of the forms seen in the field. However, with the export boom in textiles, traditional Khes weaving faced major setbacks because of the increased demand for quick deliverables and lower price-points of the international markets.

This marked the advent of powerlooms and led to the decline of the complex and time-consuming Khes production on handlooms. Types of markets have also changed with time, decontextualizing the original Khes linked to local culture and lifestyle.

The production of double cloth carpets and Khes has now shifted to single layered cotton fabrics for apparel and home fashion products. Mostly plain weaves are used for apparel and twill weaves for home products along with yarn-dyed stripes, checks, and solid colors.

Cotton, which was the main raw material for Khes weaving, has been grown in abundance in the plains of Sindh and Punjab for centuries. The use of lightweight cotton textiles for summers and the thicker ones for winters was prevalent among the people who lived in these regions. Moreover, the locally produced material used by the local communities for their own consumption was a self-sufficient component of their culture, which has died out today with the loss of skills of Khes weaving. Disruption of local production systems using local raw materials and local human skills significantly undermines the sustainability of a society.

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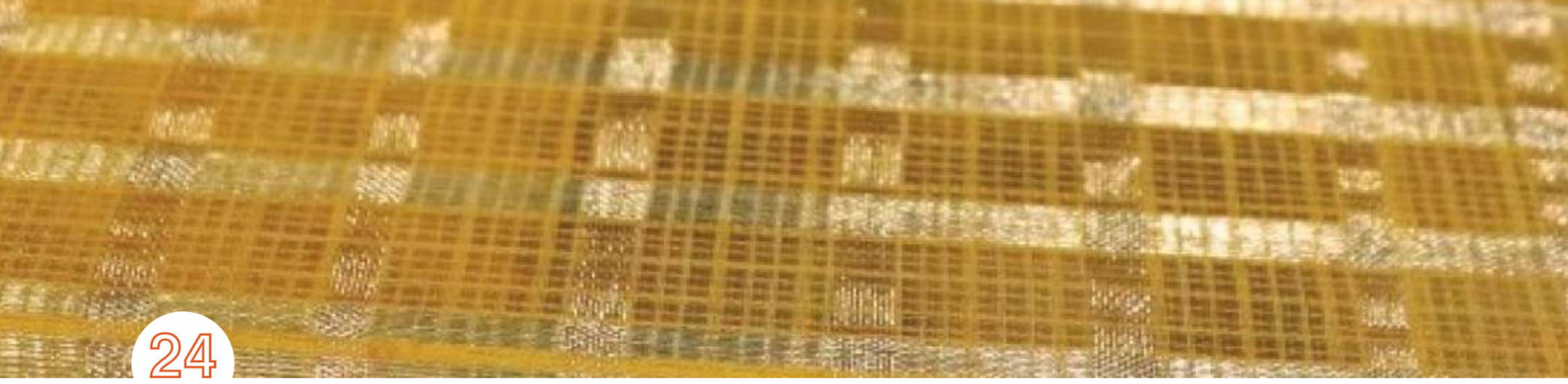
Khesh / Recycled Sarees

West Bengal

Khesh is an ancient weaving technique that recycles old saris to make a new one. Khesh weaving of West Bengal is an excellent example of upcycling in Indian textile traditions. It uses the old sarees cut into thin strips as weft while using fresh yarn as warp to create a completely new fabric out of it, highlighting learnings of circularity for the global textile industry. Moreover, Khesh weaving is done as a household activity by women, thus serves as decentralized green livelihoods for women.

The process entails cutting old sarees into thin long strips as the weft while using fresh yarn for the warp. In earlier times, worn-out cotton sarees were brought to the weavers to remake into new ones in this manner. Now the weavers collect worn-out saris through organized sources. Women pre-loom artisans patiently tear the saree into long strips. It is the weaver's responsibility to balance the warp with the weft and make the designs. Again hand-woven, these saris have a color palette that is unrepeatable and an asymmetry that makes each piece unique. This traditional form of weaving finds its root in the Birbhum district of West Bengal. The beauty of the khesh fabric is that the color of the recycled fabric keeps changing, with every single meter of fabric, adding to its uniqueness. The khesh represents one of the best examples of low-cost inventiveness and upcycled textile traditions in keeping with conscious consumption and conscious production.



24

Kota Doria

Rajasthan

Kota Doria is a lightweight textile with a square-check pattern that is hand-woven in several villages of Kota in Rajasthan. The oldest and largest concentration of weavers, with several thousands engaged in weaving activity, are found in the village of Kaithun, located 15 km away from the Kota town. Woven by the community of Ansari weavers, the majority of whom are women, there are records of the antiquity of the tradition to the time when these weavers were brought from Mysore in southern India to Kota during the late 17th and early 18th century, under the patronage of Rao Kishore Singh, a general in the Mughal army.

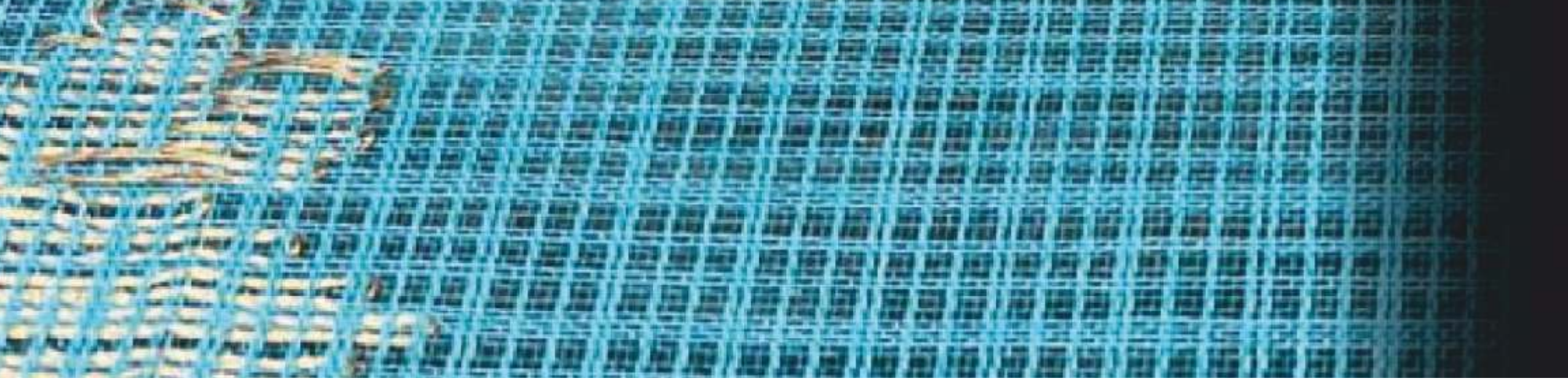
Since the weavers had come from Mysore, the fabric produced is also called Kota Masuriya. Earlier, it was woven on narrow 8-inch looms to make the traditional headgears for royalty and the court, but later broader looms were introduced to diversify the fabric to saris, stoles, dupattas, garments, as is seen today in contemporary markets.

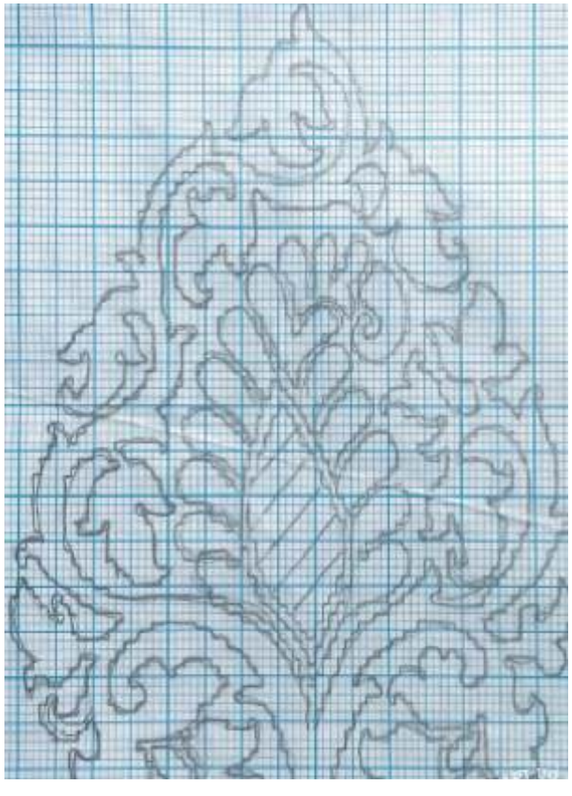
The weaving of Kota Doria continues to be a household activity involving several steps and processes. Women take a lead role in weaving the Kota Doria, which is integral to their way of life. Pit looms are used and one or two pit-looms can be found in most households of Kaithun.

The process of making Kota Doria starts with bleaching, dyeing, and starching fine counts of yarns. Eight threads of silk and six threads of cotton are placed alternately in warp and weft to form the check pattern locally called 'khat'. The width of the entire fabric is about 48 inches, containing about 300 squares or 'khats'. The designs are plotted on a graph and later transferred on a harness device known as jaala, which is a series of strings suspended on a beam that help in developing intricate motifs along with the khats. These motifs are created using small bobbins or tillis of zari/metallic yarns or dyed silk yarn.

Real gold in zari yarn was considered an essential raw material in the Kota Doria weave. This has been stated in the Geographic Indication GI tag given to Kota Doria in 2005 and is indicated that a genuine Kota Doria is one that has been hand-woven using real silver and gold yarn. In addition, a genuine Kota Doria sari will contain the GI logo hand-woven in one corner of the fabric.

Several organizations and designers have been working with Kota women weavers to empower them with sustainable livelihoods, greater market and profit share, steady direct markets through facilitation of business support services, skill upgradation, design innovation, etc. Establishing eco-friendly production processes have also been undertaken by the government and civil societies. As for example, AIACA started working with the local dyers in 2016. The dyers were trained in using azo-free and natural dyes. The weavers were sensitized on developing woven collections using azo-free dyes. They were familiarized with the dyeing





manual and shade card published by the Ministry of Textiles for further reference.

The dyers learned and practiced easy processes of dyeing and fixing. They started using azo-free, chemically stable and safe dyes. They also practiced more efficient use of dye and water by following volume, weight calculation and time-temperature charts. An original handwoven Kota Doria takes more than a month or two to complete.

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Kotpad Handlooms

Odisha and Chattisgarh

Kotpad Handloom is a well-known weaving tradition of the tribal communities of southern Odisha and Chattisgarh. In Odisha, it is practiced by the Mirgan community of Kotpad village in Koraput district for many generations. In the past, Kotpad weaves were used for traditional wear by the local tribes of Bhatra, Durua, Paraja, Maadia, and Koyan, among others.

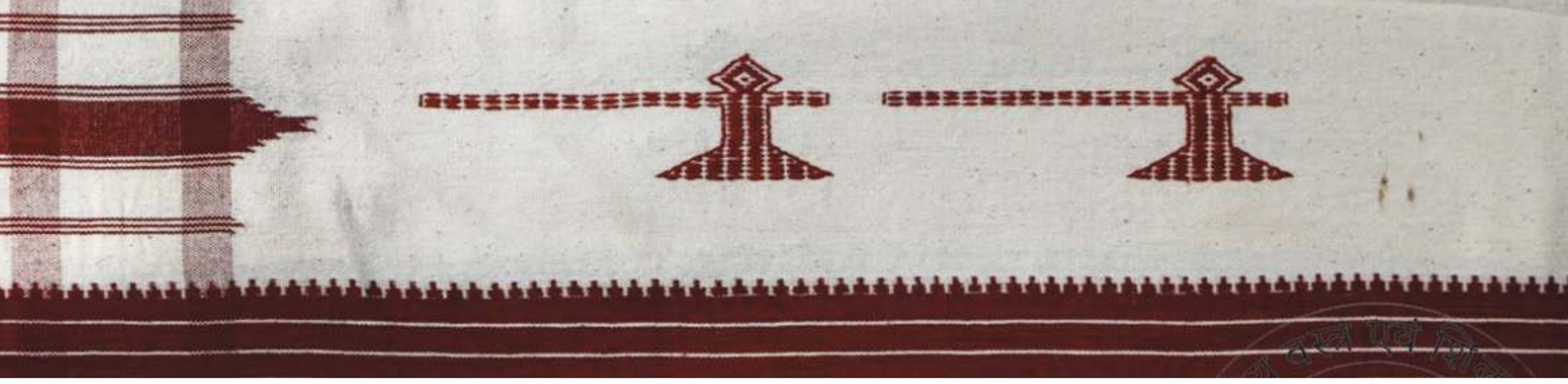
Kotpad textiles are famous for their organic dyes, which are still sustained by the weaving community and define their identity. Cotton yarn, Tussar silk, and aul tree roots are the main materials used for textile work. The typical colors of an authentic Kotpad textile are red, maroon, brown, and black, sourced from natural forest materials such as the aul tree or madder dye (Morinda citrifolia) extracted from the root of the Indian madder tree. The motifs are unique and inspired by nature and their daily lives, such as conch, boat, axes, crab, bow, temple, fish, etc.

Kotpad textiles are renowned for their use of sustainable natural dyes derived from Aul tree and madder root, promoting eco-friendly dyeing practices and reducing dependence on synthetic dyes. By sourcing dyes from local forests under regulated conditions, Kotpad weavers contribute to forest conservation efforts, ensuring the long-term availability of natural resources. Sarees and shawls are the commonly seen textile products of the Kotpad weaving community.

Kotpad handloom fabric is the first item from Odisha to receive the Geographical Indication of India tag. Even though Kotpad textiles have a limited color range, the weaves are highly attractive and sought after in the markets. They are known for their eco-friendly process and exclusivity, and hence, conscious buyers do not mind paying high prices for these products, which are treated as collector's items. The products have also diversified over time to include dupattas, stoles, etc., along with sarees and shawls.

The women are experts in dyeing, and the men are the weavers. Both dyeing and weaving are highly specialized work and involve a tedious, long process. Yarn processing and dyeing take approximately 15 to 30 days. The colors range from deep maroon to dark brown, depending on the age of the root bark used and the proportion of dye applied. Shades are derived with the addition of harikari or iron sulfate.

The yarns are first washed, starched, and then dried well before being treated with castor oil, which helps the dye color bind better with the yarn. Before dyeing, the yarns are treated with cow dung, which serves as a bleaching agent to ensure the yarn absorbs the dyes well. The yarns are then dried, washed in ash water, and given a final wash in local ponds. Afterward, the yarns are dyed. The dyed yarns are then dried, washed, and dried again before weaving on the loom.



Weaving is also a complex process done on three-shuttle pit looms with extra weft motif patterning that can create the feel of an embroidered design. Fabrics are traditionally woven in thick hand-spun cotton yarn of counts of 10s or 20s. A wooden shuttle is inserted into the weft to weave patterns into the body of the textile. Often, a smaller spindle is used to insert prominent designs in the weft. The weaver uses his hands, fingers, palms, and arm lengths for measurements while weaving to achieve the perfect specifications of the weave.

Due to state forest department regulations and restrictions regarding plucking the roots of the aul tree, the livelihood of the weaving community has been affected. Although new plantations of aul trees are being facilitated primarily for Kotpad yarn dyeing, there are differing opinions on whether it is a sustainable process. The tribal communities have had an integral relationship with nature for generations and carry indigenous knowledge of biodiversity, guided by principles of revering and protecting nature. In this context, their traditional processes may be more dependable and sustainable than modern controls.

However, there are other challenges faced by the weavers. Kotpad dyeing cannot be done during the rains, so production completely stops during the rainy months from June to October. With the impact of climate change and increasing uncertainties about weather conditions, it is even more difficult to plan and manage production. Although many textile designers and brands have been working with the weavers to uplift their livelihoods through technical support and promotion, it is not clear whether the weaving community has improved living conditions.

Finally, tribal art and craft are fundamentally linked to the people's divine relationship with nature and may not be fit for an entirely commercial venture at scale. The market needs to respect that and understand the intrinsic value of such craft so that it is recognized for its purpose, process, and indigenous skills.

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Kullu Shawls

Himachal Pradesh

Kullu shawls derive their name from the capital town of Himachal Pradesh, even though the weaving is spread across villages in the state. Originally, indigenous Kullvi people wove plain shawls, but following the arrival of weavers from Bushahr (Shimla) in the early 1940s, the trend of more patterned shawls emerged. The weavers of Bushahr were familiar with geometrical designs, which they successfully used and influenced the designs of the local plain shawls.

Traditional Kullu shawl designs are adapted to local climate conditions, ensuring the garments provide warmth while using natural fibers. Kullu shawl weaving supports traditional sheep rearing and wool production in Himachal Pradesh, promoting sustainable agricultural practices and preserving local breeds of sheep.

Kullu shawl weaving tradition has been passed on through generations and constitutes one of the major income sources of thousands of local families who earn their living part-time or full-time through weaving, trading, dyeing, and marketing. Kullu Shawls are made using handlooms, which can be found in homes in the rural areas. The weaving process is undertaken by both men and women. The weaver usually receives dyed yarn from traders and master weavers, carries out all the pre-weave activities and weaving of products, and receives wages upon delivery.

The yarns are vegetable dyed or chemically dyed. The dyer receives the yarn from traders and master weavers and dyes it. The master weaver purchases the raw material from local spinning mills and distributes it to the job workers. Weavers also work under the aegis of cooperative societies in Kullu, which are very strong, with around 180 cooperative societies. Out of over twenty thousand weavers in the area, nearly sixty percent are engaged in producing shawls. Marketing the finished products occurs through outlets, exhibitions, online platforms, registered cooperative shops, and local markets throughout Himachal Pradesh.

Kullu shawls have become popular across the world for their simple elegant designs, fine woolen fabric, and high quality. A typical Kullu shawl contains geometrical designs on both ends and may have floral designs, which can run all over. Each design may have up to eight colors. Whereas the traditional colors are bright, more modern contemporary colors used are pastel shades to suit contemporary tastes. Traditionally, black, white, and brown or natural grey colors were used as the base, with bright colors like yellow, red, green, orange, blue, etc., used for patterning. Kullu shawls are made with yak's wool, sheep wool, Angora wool, and Pashmina.

Good quality wool is spun using a spinning wheel, and the extracted yarn is wound into a bundle. The spindles are loaded with woolen threads and inserted into the shuttle.

Traditionally, shawls made from local wool are woven on pit looms, whereas commercial or fine wool shawls are woven using a frame loom or jacquard loom. Kullu shawls can be woven using both the throw-shuttle and the fly-shuttle techniques, with the latter producing more uniform fabric at a faster speed. Once woven, the threads at the ends of the shawl are tied together to create tassels. The border patterns are woven without the use of graph paper or sketches, using the dovetail or the slit tapestry technique. The pattis (border fabric) are machine-stitched at the end of shawls, or used as decorative elements in bags, hats, or other products.

Kullu shawl tradition is recognized by the state government as an important part of the heritage of Himachal Pradesh, which provides benefits to weavers to sustain and promote this heritage. The shawls received the Geographical Indication (GI) tag in 2004. Kullu shawls are in great demand among tourists and the international market, with about 5 million pieces exported annually to different countries. However, despite the high demand and good business, handloom weaving needs protection, as Kullu shawls face a threat from machine-made fake products.

Outside manufacturers, especially from Ludhiana, are producing cheap factory-made material with copied design patterns. Since the 1990s, cheap shawls made on power looms in Ludhiana have impacted the market share and profits of Kullu Shawl makers, threatening the valley's economy. The Himachal Pradesh Handloom and Crafts Cooperation signed an agreement with e-retailers such as Flipkart and Amazon in 2021 to facilitate the sale of handloom products online. However, tourism, which supports the sustenance of the Kullu shawl industry to a large extent, has become a threat to the environmental sustainability of the region. Responsible tourism needs to be promoted to restore the ecological balance of the region, reduce the tourism footprint, and enable local dwellers to live healthily in their native habitat.

27

Kunbi Sarees

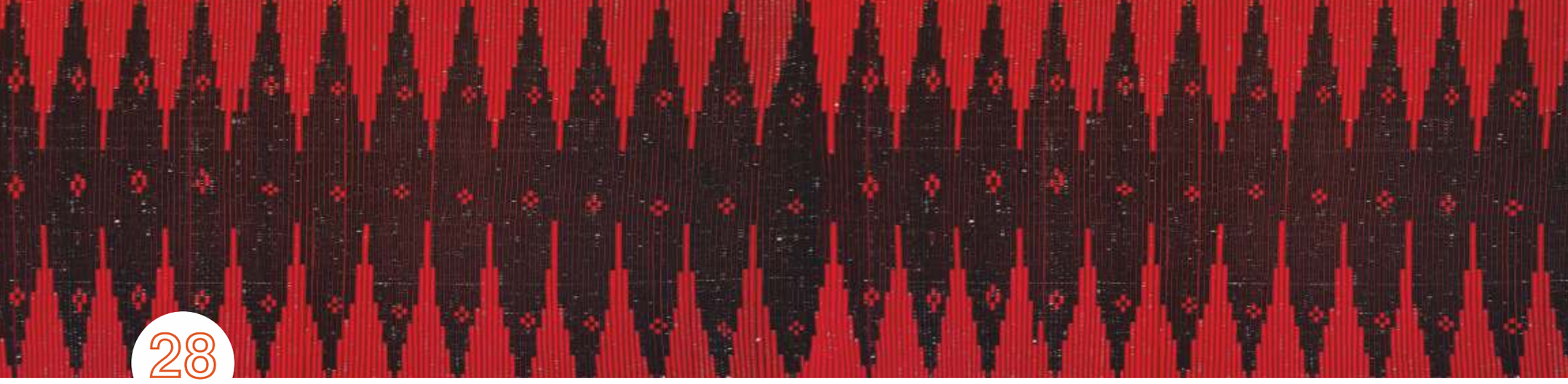
Goa

The Kunbi and Gawda communities of Goa are considered to be amongst the oldest inhabitants of Goa and were agricultural communities that traditionally wore the patterned checked cotton weave. The term kunbi is derived from the Konkani words kun, meaning 'family' or 'people', and bi, meaning seed. In the past, Goa was a well-known center for kunbi cotton handloom weaving, with many family-owned work sheds producing both kunbi saris and kashtis, the red-and-white checked loin cloth worn by men.

Traditionally, the kunbi sari was made of cotton and woven in lengths of 4 to 6 yards in a width that allowed it to be worn above the ankles, which was well suited for work in paddy fields – the traditional occupation of the kunbi agricultural community. The kunbi weave was also worn at auspicious occasions and was considered customary wear at ceremonies, cultural, and religious events. This craft is of great cultural significance to the communities. The manner of draping the kunbi sari was called dethli, which means knotted, because this pallu, or end piece, was tied on the right shoulder to keep it in place while at work. The colors were usually yellow (kesara), red (tamodh), green (hirva), with darker shades of maroon, purple, and blue or black. A feature of the kunbi besides its checked pattern is its customary border in orange and red, though now variations in colors have been introduced.

Over the decades, the weaving of kunbi cotton saris declined as power loom alternatives in synthetic materials at low prices became easily available. The rise in the price of cotton yarn made the handloom saris even more expensive and led to a decline in demand. Woven in pit looms, the few weavers who weave the kunbi sari have now widened the width of the 6-yard sari, which has now been increased to the customary 45 inches to cater to demand from urban customers. Weavers use a robust cotton yarn locally called kapad, although they can weave fine cotton saris too, for special commissions. The yarn is processed and warped, then set on the loom. Modern interpretations of the kunbi weave have added other colors to the customary palette. The original palette of colors was made from natural dyes, but now it is largely synthetic dyes that are used to dye the yarn.

Despite its connection to indigenous agricultural communities and the significance of this textile tradition, very few weavers of kunbi remain in Goa. However, following the interventions in revival by the designer Wendell Rodricks (1960-2020), the weaving and the sari experienced a revival. Rodricks refashioned the drape, the color palette, and reconfigured the patterns of stripes and checks. Besides diversifying the weave to make other kinds of clothing, he gave the kunbi saris a contemporary touch while retaining its tradition. Thus, ensuring continuity in keeping with its changing clientele, and ensuring continuity for the traditional weaver community with improved livelihood.



28

Laisingphee Quilts

Northeast India

Laisingphee is a handwoven cotton quilt unique to Assam, Tripura, and Manipur. The word "phee" or "phi" means cloth in Manipuri. Unlike other traditional Indian cotton quilts that are hand-stitched, Laisingphee quilts are woven on handlooms. They are warm and soft due to the inner stuffing of cotton wool, inserted at regular intervals between the parallel strips of weft cloth, giving the quilt a checked appearance. These quilts are woven on a fly shuttle loom in Assam and Tripura and come ready for use straight off the loom. In Assam, bamboo shreds are sometimes used instead of cotton wool. The weavers of Cachar district in Assam are particularly skilled in making these quilts.

Traditionally, weaving was a universal practice, with every girl and woman knowing how to weave a Laisingphee. The backstrap loom was often part of a bride's dowry. While women originally wove for personal use and to make traditional garments for their families, today both women and men engage in commercial weaving, producing marketable products like quilts, shawls, scarves, bed sheets, and mats. In the past, natural dyes were used, such as wild indigo for dark blue or black and various barks and leaves for red, green, yellow, and orange shades.

In Laisingphee culture, bamboo holds significant cultural and practical importance. The use of bamboo shreds in weaving showcases traditional craftsmanship and promotes sustainable practices. Bamboo shreds are crucial in Laisingphee weaving, combining cultural heritage with sustainable materials. Along with bamboo, Laisingphee weaving also utilizes dyes from local plants and barks, such as Indian Madder (red), Turmeric (yellow), and Indigo (dark blue).

Manipur is also renowned for what is locally known as 'Lashingphee", used during winter and due to extensive labour Lashingphee is now kept as one of the languishing crafts of Manipur.

Handloom weaving is primarily done by women of the Meitei community in Manipur. Manipuri Laisingphees are woven on a loin-loom or backstrap loom. The warp is prepared with suitable measurements, one end fastened to two fixed poles, and the other tied to the weaver's waist with a belt made of cotton yarn, leather, cane, or bamboo.

Laisingphee remains one of India's most sustainable textile traditions and is mentioned in a UNESCO report titled "Handmade for the 21st Century: Safeguarding Traditional Indian Textiles." Its significance lies in being locally produced with local materials, handwoven on handlooms, contributing to the economic, cultural, and emotional well-being of the communities who weave, and serving as a local alternative to non-local woolen products in winter.

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Loin Loom Fabrics

Arunachal Pradesh

The hill tribes of North-East India have their indigenous practice of weaving on loin looms since ancient times, which is considered the oldest and simplest device used in weaving cloth. Arunachal Pradesh, the largest state of the North-East, is a land of exquisite natural and cultural heritage, rich biodiversity, and 26 well-known scheduled tribes, further divided into their own sub-groups. Every ethnic community has a unique history and narrative of their migration, settlement, cultural diffusion, traditions, trade relations, economies, and way of life, with relation to its bordering countries and states - Bhutan in the west, China to the north, Myanmar and Nagaland to the east, and Assam in the south.

Loin loom weaving is one of the most ancient and simple weaving techniques. The loom is made from locally available bamboo. Loin loom weaving is still practiced as a living tradition in Arunachal, where communities still weave their own clothes. The loin loom weaving is an entirely zero-waste process with no use of mechanical energy.

The famous traditional weaving technology of loin loom, also referred to as back-strap or body-tension loom, bears a legacy that has been passed down by the women folk to successive generations from age-old times and upholds their artistry and originality. The women of all ethnic communities practice loin loom weaving at home even today, and the skill is naturally passed down from mothers to their daughters. A continuous warp is stretched between two parallel bamboos, one end tied to a post and the other end held by a strap worn around the weaver's lower back. The weaver moves backward and forward while weaving to regulate the tension of the warp with her body, and it is completely hand and body-operated. A bamboo shed pole is strategically placed to separate the warp to create two layers. Finally, the weft, which holds everything together, is carried and beaten into place to weave the designs.

The intricate motifs, designs, and colors woven by the women of different ethnic communities reflect the cultural and social identities of the people and are markers of identity. The weaves range from checkered patterns to varied geometrical shapes, to floral and animal motifs. These are mostly inspired by the surrounding nature, ritual, and auspicious motifs and tell the stories of their way of life. It is remarkable that the women still weave their own clothes, for both ceremonial and daily wear.

The typical dress that both men and women wear includes a wrap-around skirt and a top with a jacket and often stoles and colorful headgears made of fabric, all of which are hand-woven and stitched by the women. They also make sling bags with their woven motifs to add to their repertoire. All households in most communities have loin looms which are usually fixed to their balconies where the women sit and weave in between their household chores. When the loom is not in use, they often roll it up and keep it in

the house for later use. The raw materials of yarns and embellishments are bought from the local markets. They buy dyed yarns from the markets to weave.

The skills of weaving add to the inherent self-sufficiency of the indigenous peoples of Arunachal, and it is one of the components showcasing their sustainable living. Among the many local weaving traditions, the Idu Mishmi textiles received its Geographic Indication tag in 2019. The Idu community has a brilliant sense of colors and the ability to make complex designs with their loom, and hand knotting techniques. The women wear elaborately decorated handwoven full-length wrap-around skirts and a top with colorfully patterned borders. A chadar/stole which they call 'gamchha' is also part of the women's attire. The men wear a wrap-around lungi which has a much simpler design and minimal colors, but their customary jackets are gorgeous with beautiful patterns and borders. Traditionally, the men wore a loin cloth with the jacket on top. They also have traditional war coats woven in black and white which also indicate their community identity. Traditionally, their clothes were mainly in black, red, and white because of the easy availability of these colors from natural sources. Yellow, green, and blue are later additions with access to wider color choices.

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Maheshwari Sarees

Madhya Pradesh

Maheshwar is an ancient town of pilgrimage with a rich heritage of art and culture. Maheshwar has been a hub of handloom weaving since the 5th century, but it gained fame during the rule of the powerful Maratha queen Rani Ahilyabai Holkar (1767-1795). Handwoven with silk and cotton yarns, the Maheshwari textiles have a soft texture making it a perfect summer wear.

Maheshwari weaving is marked by its commitment to water conservation, particularly through the efforts of the Rehwa Society. The society has implemented an effluent treatment plant to recycle wastewater from the dyeing process. This treated water is then used for irrigating the gardens of Ahilya Fort, demonstrating a closed-loop system that reduces water waste. Additionally, the emphasis on handloom weaving, a low-energy industry, supports sustainable employment and local production systems, promoting environmental and social sustainability.

Holkar queen Devi Ahilya Bai promoted and patronized the weavers who were brought from various princely states like Hyderabad, Mandav, and others to settle in Maheshwar. The queen also encouraged the weavers to follow designs that were inscribed on the Maheshwar fort, which was built by the Mughal emperor Akbar. These designs became a part of the tradition of Maheshwari weaves and even today these designs can be found on the borders of Maheshwari saris.

About 800 families in Maheshwar have been involved in the weaving business. They belong to different castes and religions, including Kshatriyas, Bharuds, Muslims, Kumhars, and Kahars. All these people are either from nearby areas or had migrated to Maheshwar and are now permanent residents here.

Cotton yarn for the weft is purchased from Coimbatore. Mulberry Silk, used as the warp, is purchased from dealers in Bangalore. Zari, used for weaving the borders, is procured from Surat (Gujarat). Two types of handlooms are used in Maheshwar—the older pit looms and the newer frame looms. While weaving on a pit loom is tedious and time-consuming, a frame loom is a more recent technology that is easier and faster to operate. Hence, a large number of weavers have readily adopted the use of frame looms.

Both cotton and silk are dyed before being fixed on the loom. The process is normally carried out by the weavers themselves or outsourced to specialized dyeing communities. Originally, Maheshwari saris were woven in earthy shades like maroon, red, green, purple, and black, using only natural dyes for the yarn.

A sari takes 3-10 days to weave with the most time-consuming part being making the pallu, which can take 3-4 days due to its detailed designs. Once a sari is completed, it is taken off the loom and sent for cutting. The normal length of such a sari is about 11 feet.

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Mangalagiri Sarees

Andhra Pradesh

Mangalagiri is a small village in Andhra Pradesh by the banks of the river Krishna, known for its age-old tradition of handloom weaving. The traditional saris used to be coarse and thick, used by the farming community. They were woven in counts of 40s, 20s, and occasionally 60s. With time, the weavers lost their local market and migrated to nearby towns for labor work.

Originally the Mangalagiri weave used natural dyes. The weave is highly complex and intricate resulting in high quality fine cotton textiles which forms the grand heritage of Mangalagiri in Andhra Pradesh. Once a source of sustainable livelihood, its popularity has led to adaptations such as use of polluting chemical dyes that endanger the craft.

During the 1980s, Mangalagiri weaves caught the attention of some designers who saw their potential and encouraged weavers to weave finer counts with a wider range of colors for contemporary markets. This led to the revitalization of the Mangalagiri textiles, which became famous for their multicolor stripes and checks. Since then, Mangalagiri has become a national and international name for textiles known for vibrant colors and fine quality. There are about 10,000 workers dependent on this handloom industry locally, out of which 5,000 are weavers. In 2013, Mangalagiri Textile also received the Geographical Indication (GI) certificate for their famed saris. As per 2013 data, their monthly production was pegged at roughly Rs. 6 crore.

Today, Mangalagiri weaves have diversified from saris to dress materials and upholstery, including curtains, bedcovers, and pillowcases. Initially, the width of the weft used to be 48 inches but nowadays, in response to consumer demand, this width has been reduced to 44-46 inches. The weavers can thus increase or decrease the warp width as per market demands. The revival of Mangalagiri weaves has brought back the weavers who left the trade, as the demand for their products has increased in national and international markets.

Mangalagiri textile is traditionally woven on pit looms. The yarns are procured from mills and wholesalers in Andhra Pradesh and Coimbatore. Dyes are procured from Gujarat. Natural colors have been tried on occasion but generally have not been adopted by the weavers because they could not achieve uniformity and consistency of colors. They use natural dyes only occasionally, especially when specified for export orders. They use chemical colors, which are easy to apply and widen the scope of color palettes to include a large variety of shades for which Mangalagiri fabrics are known. The zari threads used are half zari and powder zari sourced from Surat in Gujarat. In the earlier days, the zari used was pure but with lack of demand and market competition, pure zari was replaced by half zari.

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Mashru Fabrics

Gujarat, West Bengal, Uttar Pradesh, Punjab, Tamil Nadu

The Mashru fabric is a vibrant, handwoven textile made of silk and cotton yarns. The Sharia (sacred Muslim law) forbade Muslims to wear pure silk on their body. Mashru originated as a solution to enable Muslims to wear such gorgeous glazed textiles composed of a silk warp and cotton weft, wherein the ground material touching the skin is cotton, and the outer surface is silk. Hence it is called Mashru, which in Arabic means 'permitted'.

Mashru is an amazing instance of how craft evolves as a creative human response to social and environmental factors. In this case, cotton is not only 'permitted' but also entirely suited to the hot tropical conditions of India.Thus not only is the fabric appropriate as festive finery but it is also equally comfortable to wear.

Mashru fabric is made using a satin weave by interlacing silk and cotton yarns. Cotton makes the weft, or the horizontal yarns, while silk is used for the warp, or the vertical yarns. In this weave, each silk yarn goes under one cotton yarn and above five or eight or more cotton yarns, giving an appearance of a shiny surface that looks like it is made up of only silk, while the underside of the fabric is cotton. Since the structure of the fabric allows for this double yarn, it also makes the fabric stronger. The warp is first prepared, which includes processing the silk threads so that they are softer, stronger, and easier to weave. The weft cotton yarn count is mostly 30s - 32s, which are transferred onto a bobbin for shuttle. Weaving of Mashru is done on a traditional pit loom.

Mashru has different names based on their pattern, color, weave, or place of manufacture. Varieties like Sangi, Galta, Gulbadan, and Gusi were produced in Uttar Pradesh and Patiala. Other centers of prolific Mashru production were Bengal, Tatta in Sindh, Coromandel Coast, Tanjore, Trichinopoly, Madurai in Tamil Nadu, Aurangabad, Varanasi in North India. Gujarat was famous for its Alacha and Qatni variety. At present, the production of Mashru is limited to Patan, Mandvi, and Surat in Gujarat. The port town of Mandvi was at the center of the Mashru legacy in Kachchh, historically creating these luxurious textiles. In the regions of Saurashtra and Kachchh, women stitched Mashru kanjari (backless blouses), skirts, and cholis. The Ahir Patels (farmers) produced cotton, which was hand-spun and then given to the weavers. Rabari and Ahir women did embroidery and mirror work to create even more gorgeous pieces of Mashru.

Mashru was a royal craft, produced in large quantities until the 1900s for local elite and export markets, and was traded to Middle Eastern, Mediterranean, and African countries. In addition to being exported as a coveted item of men's clothing in Turkey and the Middle East, Mashru was also used by the folk communities of Kachchh to stitch garments for their dowry.

Traditionally, Mashru was mainly used for

garments and costumes of the elite courtiers and nobles. Skirts, blouses, and tunics for men and women are other garments made from the fabric of Mashru. Mashru was traditionally characterized with bright contrasting stripes in vibrant colors, but other patterns of little dots and motifs were also found. While the small dotted pattern is commonly seen in Anjar, Kutch, the striped ones are liked across the country. The dominant colors used are glowing shades of red, yellow, green, and blue.

Many designers, organizations, and textile specialists have studied and made efforts to revive original Mashru weaves through the diversification of designs, styles, and products. The use of new techniques includes combining other traditional methods of 'Bandhani' and 'Batik' for creating innovative patterns. Mashru is also used for making quilts, cushions, and bags. Khamir, working to strengthen and promote the rich artisanal traditions of Kachchh district since 2005, created a raw-material depot, and encouraged the artisans to work regularly by purchasing their entire annual stock. With the stock, Khamir explored new markets. In time, weavers increased the palette of colors and incorporated new designs which included fusing other crafts like leather. Through Khamir's initiative, some Mashru weavers got a considerable boost for the revival of this textile. The National Institute of Fashion Technology (NIFT), Gandhinagar, under a GSHHDC (Gujarat State Handloom & Handicrafts Development Corporation Ltd.) also initiated a project on skill upgradation of artisans engaged in the craft and contemporization of designs with local artisans of Patan.

Renowned designers have also worked with Mashru weaving to make their fashion collections. Awareness of Mashru weaving and the history of its origin is low, especially among the larger community of conscious consumers. Branding the weaving tradition by highlighting its inherent functional and innovative features may enable Mashru weaving to thrive and grow in the modern sustainable fashion industry.

33

Muga Silk

Assam

Muga silk is a variety of wild silk native to Assam. Assam is the largest producer of Muga silk in the world which is one of the rarest forms of silk. The silk is known for its extreme durability and has a natural yellowish-golden tint with a shimmering, glossy texture. In Assamese, 'Muga' means yellow, and hence its name. Sericulture in Assam has been an ancient industry with which the Muga weaving industry is associated. There is no record of when Muga silk production began in India.

Kautilya, a philosopher, economist, teacher and royal advisor, who lived between the fourth and third centuries BCE, mentioned the production of golden silk in ancient Assam in his writings. It is also believed that the knowledge of sericulture arrived with the Tibeto-Burman groups around the period of 3000-2000 BC. The natural characteristics of the golden Muga silk fabric make it so expensive and highly sought after. It is known for its smooth texture, extremely soft, and highly lustrous look. The fabric does not comprise any chemicals and is made up of 100% natural fibers. Muga silk also has the natural quality of humidity absorption which makes it resilient adding to a long shelf life. Muga, being a naturally honey-toned fabric, is never dyed. That is the hallmark of Assam's most precious silk.

The Sualkuchi silk industry, which totally depends on the handwork, skill, and dedication of the weavers. There is a lot of scope to develop this agri-sector-based weaving industry by ensuring value chain connectivity to the last mile, as well as training and business support. The green fashion industry should be explored more to promote Muga silk as a sustainable textile industry of Assam. The rearing of Muga silkworms is also helpful in maintaining environmental degradation by increasing areas of green cover, as the industry is dependent on various types of plants.

Although silk was cultivated and woven by women all around Assam, the silk weaving of Sualkuchi achieved much fame during the Kamarupa as well as Ahom rule. Sualkuchi is said to have been established in the 11th Century by King Dharma Pala of the Pala dynasty that ruled western Assam from 900 AD to about 1100 AD. Silk was given royal patronage during that period and Sualkuchi was made an important centre of silk weaving.

The Ahom rulers prioritized Muga silk industry for augmenting their trade relations with other regions, and also overseas. They also made it mandatory for all the higher officials in their kingdom to wear clothes made from Muga silk. Visiting dignitaries were often gifted clothing made from Muga silk. Royal looms were operated by female weavers within the palace, and the fabric woven on them were for the royal family. Several looms of Muga were under royal supervision and were famously known as Rajaghoria looms.

In Assam, it is a matter of pride for a woman to own a muga mekhela chador. It is generally passed on as an heirloom piece or gifted to the bride in her wedding. The Muga mekhla chadar (traditional dress of Assamese women) is considered as important as the gold ornaments of a wedding trousseau.

Muga silk business is currently valued at Rs 200 Crore, but it is believed to have the potential to become an industry which is 10 times the current size. Muga silk has a great international reputation. Assam contributes 95% of the country's total Muga production. Assam received the Geographical Indication (GI) tag for Muga silk in 2007. Today the weavers make various kinds of products such as silk Mekhla chadar, sarees, kurta, dhotis, Cheleng chadar and stoles. A Muga mekhla chador ranges from Rs. 35,000/- to Rs. 1,50,000/-. Global demand for Muga silk has paved its way into the global markets especially in Japan where designers are using it to make kimonos and other traditional Japanese dresses.

The Central Silk Board of India has been granted the authority to inspect Muga silk products, certify their authenticity and allow producers to use the GI logo. This board is also involved in R&D and infrastructure development for Assamese silk, including muga, through the Central Muga Eri Research & Training Institute (CMER&TI) in Jorhat, Assam.

Typically, it takes about 1000 cocoons to produce 125 grams of silk and about 1000 grams of silk for one saree. The average production per acre of land is 400 grams of silk. Despite much advancement in the loom's technology, the most widely used looms for Muga weaving are the throw shuttle looms and the loin looms which constitute the traditional looms of Assam. Usage of improved mechanisms like dobby and jacquard can be found mostly in commercial centres and government-aided production centres and are not within the reach of the common weavers.

Traditional Assamese motifs include abstract figures of animals, birds, human figures, creepers, flowers, celestial phenomena, religious structures, etc. Additionally, ritualistic symbols from nature are depicted in their motifs and designs. Muga silkworms are mainly reared outdoors, and hence sustainability of the silkworms greatly depends on the climatic conditions. Muga silkworm requires temperatures to be within the range of 25°C to 27°C and humidity in the range of 75-85%. Any negative impact on the climatic conditions affects the life cycle of the silkworms. While the demand for Muga is ever-growing, Assam is facing challenges of desired supply of raw materials because of the impacts of climate change and weather conditions.

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Navalgund Floor Mats

Karnataka

Navalgund durries are handwoven rugs made in Navalgund town in Dharwad district of Karnataka, India. These dhurries were originally made by a group of weavers of Bijapur who used to live in the Jumkhaan Gulli during the reign of Ali Adil Shah. When war broke out between Adil Shah and the Vijayanagar empire, the Jumkhaan weavers migrated to Navalgund, in the 16th century, and settled there. Navalgund durries are well known for the excellence in quality of their structure, originality of color and form. In 2011, it was GI tagged to protect and promote this tradition of handwoven durrie making through generations.

Navalgund durries have a historical connection to the migration of Jumkhaan weavers from Bijapur to Navalgund during the 16th century, seeking refuge and bringing with them their weaving traditions. This historical migration not only enriched the cultural fabric of Navalgund but also contributed to the unique designs and motifs found in Navalgund durries today. The traditional Khadav Magga looms used for weaving these durries have been passed down through generations, maintaining the authenticity and craftsmanship of this ancient craft. By preserving these historical techniques and patterns, Navalgund durries continue to serve as cultural artefacts that connect past traditions with present-day craftsmanship.

Navalgund, the name of the town, means the 'hill of peacocks'. The region being famous for peacock, the weavers have also incorporated peacock motifs in their weaves. Made of pure cotton thread, these durries are adorned with geometric designs, birds, and animal designs. The two major types of durries woven here are Jamkhana, used for floor covering and Jainamaaz, which are prayer mats. The Jamkhana floor coverings are widely used during marriages and functions and in homes during occasions. These durries are made exclusively by the women of the Sheikh Sayeed community who were traditionally confined to their homes, and hence this craft became their exclusive engagement. They operate the looms at their homes. At one time, there were 75 women working on this handicraft, but due to lack of facilities and poor returns, the numbers declined to 35 women.

The weavers are found to be secretive about their art of weaving the durries, and the skill is taught only to their daughters–in-law (not to their daughters as after marriage they would go away to another family). Guddar is the third type of floor covering as well as a covering for stored grains and is woven by different groups of weavers in Navalgund, which has got no connection with Jamkhan weavers. To make a Guddar, broad and long stripes are stitched together.

This fabric is warp faced and patterns in stripes are made using different colours. Navalgund durrie weaving is done on a vertical loom

locally called Khadav Magga which means vertical or upright loom. These looms are permanently fixed in the corners of the weavers' households. The raw cotton is procured by the weavers from the Karnataka State Handicrafts Development Corporation. Yarn is purchased from the markets of Hubli, Hulkoti, and is dyed in Ron taluk of Gadag. Cotton 3/10s, an unbleached yarn, is used for the warp and cotton 10s of 6-ply is used for weft. Pre-weaving process includes preparation of warp, which is a set of threads running along the length of the durries and which is covered by the weft. The warps are prepared in large open grounds in the town and then fixed on looms for weaving. Weaving is done in a set pattern using warp beams of the looms, sticks and threads. The yarn of the weft is then dyed with dyes of black, yellow, red, brown, blue and green colours, mixed with water, and the hanks are kept in the dye solution for 20 minutes before removal and drying. The warp is then fixed on the loom. The weaving is done by two weavers facing each other. Patterns are introduced in the warp at the appropriate stage of weaving. The designs are decided by the weavers intuitively, and they weave from experience and memory, giving each durrie a distinct look. These durries are predominantly weft faced fabrics. To get a good construction of the fabric the weft is layered in the warp, which would cover the warp. After weaving enough picks, beating is done with a punja along the warp and against the weft which is woven. Following completion of the weaving process, the durries are removed from the loom, extra threads are trimmed, and tassels, in the form of knots, are made at the end of the warps for decorative purposes. The usual colours used in these dhurries include white, yellow, red, blue, green, orange. Colour- wise, red is dominantly used as the background in most durries. Each dhurrie is divided into three parts with center and two ends, where the center is woven with simple, geometric forms, and the ends have symmetrical designs. In most of the durries, the dominant color used is red which is used as background, yellow as the base for designs and motifs of other colors, and green, black and white are used as accent colors. These products are well known nationally, and also enjoy international markets in Germany and Australia. To support these weavers, the Karnataka government had set up a production centre exclusively for dhurries. Before the pandemic more than 35 persons worked there, but that number has now come down to about 15 weavers. Keeping in mind its legacy and uniqueness, if the government supports training, capital assistance, and other business support facilities including direct market linkages, Navalgund durries may survive and thrive as sustainable handmade exclusive floor coverings from Karnataka.

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Paithani Sarees

Maharashtra

Paithani is one of the most magnificent and luxurious textiles in the world, originating in the town of Paithan in Aurangabad district, Maharashtra. Paithani is a brocade saree completely handcrafted using traditional tapestry techniques. Its special feature is that it looks identical on either side of the fabric. A Paithani weave is considered a treasure and is a traditional bridal trousseau for Maharashtrian women. Its origin is believed to date back to 200 B.C. during the Satavahana Empire under the rule of Shalivahana. It is also believed that during this period, Paithani textiles were exported from this region to foreign countries. Traditionally, four communities practiced the craft of weaving Paithani sarees—the Kshatriyas, the Koshtis, the Shalis, and the Nagpuris. Traditionally, men wove on looms, while women mainly assisted in pre- and post-weaving processes.

Paithani weaving stands out for its use of heirloom techniques and motifs that have been preserved for centuries. The traditional methods of weaving, which include intricate handlooms and detailed designs, ensure the longevity of the craft. These heirloom techniques not only maintain the cultural heritage of the community but also produce textiles of exceptional quality that are highly valued and less likely to be discarded, promoting a sustainable consumption pattern.

Traditionally, Paithani sarees were woven using cotton and gold zari threads. Silk was a later addition. The silk yarns are bought from local shops that source them from Bangalore. The zari is sourced from Surat. The town has a few dyers who dye the yarns according to the weavers' needs. Paithani weaving is complex, and depending on the designs, production time may vary between 10 days to 1 or 2 years. Production of saris continues throughout the year, keeping the weavers busy, although the peak time for sales includes the marriage months of summer and late winters. Weavers use different qualities of yarns and zari, which also determine the luster, strength, quality, and cost of the product.

Traditionally, dark shades were used for Paithani weaving. Nowadays, lighter shades such as yellow, blue, white, red, pale green blends, red, pink, green blends, peach, pale pinks, and purple are in demand. After procuring the yarns, they are pre-processed and dyed. Warp yarn is prepared on a spool, and weft yarns are wound on small spools using a charkha. Loom setting and designing are done. Designs are woven using dobby (for border designs) and jacquard (for the body of the sari). Punched cards carrying the design are fitted into the jacquard attachment, and weaving begins.

Designs can be categorized into paper designs, dobby designs, geometrical designs, and jacquard designs. In paper designs, a paper with motifs drawn on it is placed below the warp threads and fixed with pins. The weft threads are then moved accordingly over the warps. In

dobby designs, the desired border designs are set up in the dobby attachment, and yarns are arranged accordingly. The border is woven with golden zari threads and silk threads. Some designs used in the pallu are geometrical, set on a fixed number of threads. Artisans memorize the increments and decrements in threads required to create the design pattern. Jacquard designs woven in the body of the saree are created with the help of a jacquard attachment.

Paithani is traditionally characterized by the "Mor Butti" (Peacock Motif), "Narali Kinar" (Coconut Border), Pankha Motif, round dots, flowers, diamonds, etc. There are motifs that are 1000 - 2000 years old and are no longer woven in that exact form. For example, the Bangdi-Mor motif is one of the oldest and most intricate motifs in Paithani. Originally, it included 36 design elements, but over time it was reduced to ten, and in the current century, not a single true Bangadi-Mor has been woven. Other such motifs include the Ajanta Lotus, Mango motif. Over time, motifs have changed and modernized. Today, a Paithani sari is identified by these peacock motifs. Weavers today are unaware of the meanings and significance of the old motifs and how to weave them. There is no exhaustive and systematic documentation of the repertoire of traditional Paithani motifs.

Traditionally, Paithani saris were woven as nine-yard sarees, which is their traditional length. Later, weavers began weaving six-yard lengths as well. In addition to saris, they also made shawls for King Aurangzeb and King Nizam Shah. Today, the range of products has diversified to include dress materials, lehengas, dupattas, stoles, as well as upholstery curtains and cushion covers.

The Government of Maharashtra has undertaken initiatives to revive the Paithani weaving heritage by training young people in this weaving skill. However, the original weaver's community of Paithan has shrunk, and one can hardly find traditional weavers having complete knowledge of the old techniques in this town. Certain institutions and the Textile Ministry are, however, taking steps by training new weavers. Interestingly, this has changed the profile of weavers from men to women. Change is inevitable which is why all crafts are considered as living traditions. However, sustaining the heritage and traditional knowledge through documentation, transmission, and practice are fundamental to the principles of sustainability of the craft and the makers' community. Paithani weaving historically has been a source of livelihood, collective pride, cultural identity, and well-being of the weavers' community which need to be restored for continuity and growth of this exquisite local handskill based cottage industry of Paithan. Reviving authenticity will add to its true value and branding of sustainable and slow fashion.

36

Panja Durries

Rajasthan, Madhya Pradesh, Uttar Pradesh, Himachal Pradesh, and Punjab

Panja weaving, named after the metallic claw-like tool called panja used to set the threads in the warp, is a technique for creating light woven rugs known as durries. These rugs, used as floor coverings or bedspreads, are popular in North India and are made from coarse yarns of cotton, jute, sheep, camel, or other animal wool.

The natural fibers like camel hair and coarse sheep wool, locally called "jhat," are known for their durability and strength, extending the life of the durries. Longer-lasting products reduce the frequency of replacement, leading to less waste and a smaller environmental impact over time. Using jhat, often a by-product of goat farming, helps in waste utilization. Instead of discarding the goat hair, it is repurposed in weaving, contributing to a zero-waste approach. The integration of these local fibers supports rural economies by providing income to herders and weavers. This economic sustainability ensures that traditional skills are preserved and passed down through generations, maintaining cultural heritage while providing livelihoods.

In Salawas, a village in the Luni tehsil of Jodhpur district, Rajasthan, durrie weaving has been practiced by the Prajapat community since the mid-19th century. Traditionally called Jhat-ka-Gandha, these durries were plain, weft-faced rugs woven with coarse sheep wool, goat, or camel hair. Historically, they were exported to the Middle East to extinguish oil well fires and were part of bridal trousseaus.

Salawas durries are made on horizontal looms using a weft technique, where threads are woven crosswise on a loom, creating multiple motifs, colors, and patterns with independent wefts, which are then set in place using the panja. The strength of the durrie is directly related to the beating process.

The weaving technique involves leaving a space of 2-2.5 feet in the frame, interspersing threads, and using a one up-one down technique. Threads are tightly packed at the end of each line, and after completing the weaving, the layers of the loom are interlocked. The Salawas durries reflect the high indigenous skills, creativity, and aesthetics of the local producer community.

Salawas durries, as a source of traditional livelihood, have the potential to establish a unique social identity and vibrant local cultural industry. Sustainable livelihoods can be achieved through the revival and promotion of Salawas durries as a living heritage and dignified occupation. Fully handmade without mechanized tools, these durries have a minimal ecological footprint. With growing awareness of sustainable production and eco-friendly products, weavers are now reviving natural dyeing and recycling extra yarns to create popular small items like ornaments and bookmarks.

37

Siddipet Gollabama Sarees

Telangana

Siddipet in Telangana is well known for the Siddipet Gollabama sarees. These saris traditionally feature the gollabama milkmaid motifs and other geometrical designs in the border, body, and pallu. Woven in 60's-80s cotton yarn both in the warp and weft with extra weft patterning of gollabama (milkmaid) in the border, body, and pallu.

Siddipet Gollabama sarees are woven using cotton yarn in both warp and weft, reflecting a sustainable approach to material sourcing. These Siddipet Gollabama sarees represent more than just a cultural tradition; they embody sustainability through their use of organic materials and traditional techniques. Siddipet Golabama Sarees received GI tag in 2012.

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Solapur Chaddar

Maharashtra

Solapur chaddar, a cotton blanket made in the city of Solapur, Maharashtra, is a GI registered handloom product. These were previously made by handloom but now they are made on Jacquard loom and are known for their unique design and durability. The development of the handloom weaving industry in Solapur seems to have commenced during the regime of the Peshwas. They have been manufactured by Padmashali weavers from South India since their presence in Solapur in the 1950s. There were numerous small independent artisan weavers in the industry.

Historically, Solapur Chaddar's handloom weaving industry dates back to the regime of the Peshwas, showcasing a rich legacy of craftsmanship that has evolved over centuries. The integration of Jacquard looms in modern times reflects a continuation of innovative techniques while preserving the traditional motifs and designs that have been passed down through generations. This blend of ancient techniques with modern technology not only honors the cultural heritage of the Padmashali weavers but also highlights their adaptability in sustaining their craft amidst changing market demands.

Each artisan-house had one or two looms which were generally handled by the head of the family. The family was the unit of work and the women of the family and young adults helped the weaver in preparatory processes and in some cases in dyeing also. The handloom business of Solapuri chaddar was huge from 1993 to 2003. Solapuri chaddar has demand in local and national markets. It is also exported to countries like United Arab Emirates, Kuwait, South Africa, United States, United Kingdom and Canada.

Solapur continues to be well known for its textile industry as it once had Asia's largest spinning mills. It is estimated that there are about 25,000 power looms employing about 100,000 workers here producing textile products, including towels, bed and table linens and cotton blankets. As per a survey carried out after the second wave of Covid-19, now there are more than 50,000 workers directly or indirectly dependent on the industry.

39

Sujani Fabrics

Gujarat

Sujani weaving of Bharuch in Gujarat is a double-cloth fabric weaving technique to make checkerboard patterned quilts that are created on the loom. Its uniqueness lies in filling cotton between the warp and weft threads while weaving, such that it becomes part of the fabric. Sujani weaving is believed to have originated in the mid-nineteenth century in the port city and cotton-milling center of Bharuch, but its actual history is not known and is explained through different anecdotal stories.

It is said that when Bharuch was under the Nawabs, Sujani quilts would be created with rose petals, 'henna' petals, and other leaves to provide a soft texture and exquisite fragrances. Sujani weaves are typically characterized by beautiful geometric designs with alternating white and colorful squares and floral designs with butis woven using the extra-weft method, and rendering unique texture and patterns on the surface. The designs are always preconceived. The stuffed cotton makes the quilt warm and cozy. This product can also be used as a bed-spread, carpet, or a throw.

The inherent sustainability of this craft is demonstrated through its time-tested process. It has sustained its uniqueness, is completely handmade, and requires high levels of specialized human skills that need to be learned and practiced well. The product also retains its relevance in modern-day living with its diverse applications in home and interiors.Original Sujani is handwoven and uses cotton as a filling material in the pocket making it an energy-efficient, vegan, and sustainable alternative to commercially available blankets.

Sujani is woven on a pit loom using a throw shuttle, similar to cotton weaving. The cotton batting is inserted using a silli (metal rod) for every three-fourths of an inch completed. After filling, the pockets are sealed by weaving the remaining quarter inch. The process of weaving, filling, and sealing is repeated for each subsequent row. Once the weaving is completed, it is taken out of the loom and the loose ends are gathered and knotted for finishing the product. Sujani weaving is essentially done by two weavers sitting on either side of the loom. The loom has 8 shafts and 2 sets of 8 pedals which require perfect coordination between the two weavers. This process of weaving is highly laborious and requires specialized skills. It takes more than a month to set up the loom, but once fixed, the weavers can make around 100 quilts on it, each taking a few days to make. Sujani quilts are highly durable because of their make.

Bharuch district is the only craft pocket of Sujani weaving in Gujarat and there are only a very few families practicing it. It is very interesting to note that the Sujani pattern has remained the same over the years because of its traditional weaving process which cannot be changed much for design innovations.

40

Sungudi Tie and Dye

Tamil Nadu

Madurai Sungudi is cotton fabric patterned with designs that are made using the tie and dye technique. The tradition of these sarees dates back to the sixteenth century during the Nayak dynasty's rule in Madurai. The craft is practiced by artisans from the Saurashtrian community of Gujarat, who migrated to Madurai about 600 years ago. This tradition is a great example of how migration can lead to a craft form adapting itself to new contexts. The migrating Saurashtrian community was skilled in the tie-dye technique on silk. They adapted these skills to create the Madurai Sungudi cotton saree, which became an integral part of Madurai's culture and is customarily worn by many communities of southern India during marriages.

In the times of climate change, when migration is becoming a major geopolitical, environmental, and economic challenge, the Sungudi Tie and Dye technique showcases how an art adapts and evolves to new ecological, cultural, and social contexts when an artisan community migrates to a new region. In this case, red color was obtained through an indigenous plant, Indian Madder (Oldenlandia umbellata), widely seen along the Coromandel coast. The roots of this plant, when grown under soil rich in calcium due to the presence of crushed seashells found near estuaries, along with the quality of water from the river Vaigai, are considered to create the intense hue of red peculiar to Madurai.

The term 'Sungudi' comes from the root word Sunnam, which means ringed dots in the Saurashtrian dialect. Traditional Sungudi sarees have numerous circular dots on the body that create various thematic patterns, hence the name. It is believed to have been inspired by the cosmic stars.

The tie and dye process for making Sungudi sarees is long and complex. The tying process takes around 8-10 days for a single saree, as one saree can have several thousand knots per the design, and each knot is carefully hand-tied by women artisans. After knotting is completed, several steps of dyeing and washing are done to get the final product. The older generations have been known to do ten to fifteen thousand knots in a day. The Madurai Sungudi is entirely hand-crafted, so each design and pattern is one of a kind.

The saree borders and pallus are typically in contrasting colors, and the contrast borders are done by clamp dyeing with wooden blocks. The Sungudi saree process involves several specialized artisans—from those who weave the sari to others who tie the threads, dye, wash, dry, and iron it. One saree passes through several hands.

41

Tangaliya

Gujarat

Tangaliya weaving, also called Daana, is practiced in Surendranagar district of the Saurashtra region of Gujarat. A unique weaving technique traditionally practiced by the Dangasia community, Tangaliya is identified by tiny dots of extra weft that are twisted to give the effect of bead embroidery on a plain-colored fabric. Pit looms are used for weaving. This indigenous craft is believed to have a 700-year-old history. There are oral accounts of how this weaving exactly started, which are narrated as folktales by the local communities.

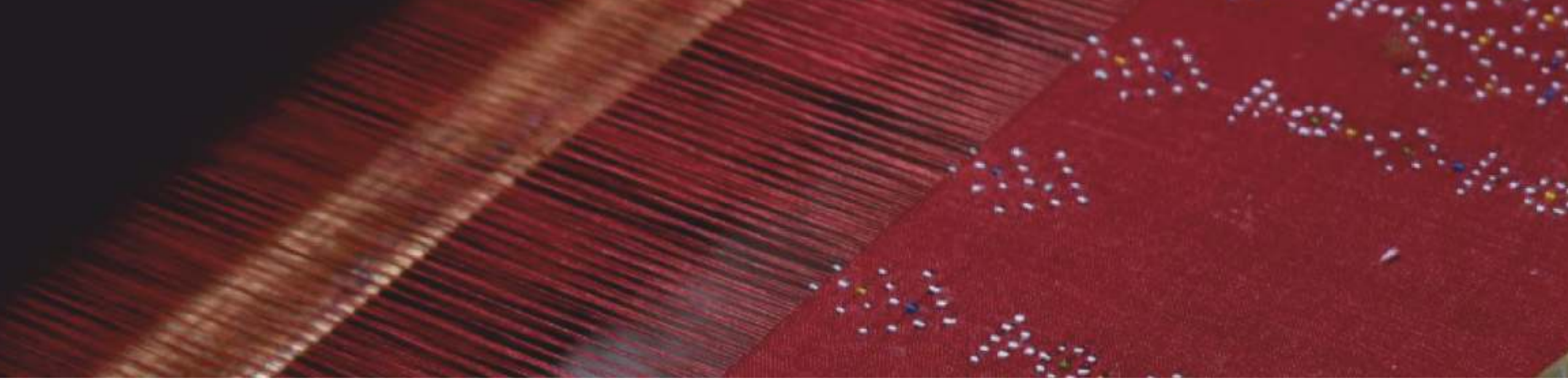
Traditionally Tangaliya weaving was done only on locally sourced sheep wool. Original shades of wool- or wool yarn dyed with natural color was used to create the beaded designs (Daana work). Tangaliya weaving is an example of how minimal locally sourced material can be used to create beautiful designs. Further wool provides longevity to the garment. This eco-friendly tradition is now being tried on different fibers, creating livelihood opportunities for the artisan community.

Historically, the Dangasias shared a symbiotic relationship with the Bharwad (local shepherd community who herded cattle, goats, and sheep) and were engaged in a barter trade for their livelihoods. The latter provided wool to the former who wove garments for them in return. The Dangasias were paid by the Bharwads in the form of grains or other barter materials. The wrap-around skirt that they made for the Bharwad women, called chaniya, was woven as two pieces because the looms were small back then. The pieces were then stitched together.

The range of garments included Tangaliya, Galmehndi, Dhablo, Dhunsu, and Charmalia. The women of the household assisted the master weavers with wool cleaning, yarn preparation, yarn dyeing, bobbin preparation, and warping.

The fabric, woven on a pit loom, is usually narrow in width and 20 feet long. It is then cut into half, and the two sections are stitched together. The intricate method of twisting the extra weft while the weaving is going on creates beautiful linear patterns and forms. The essence of Tangaliya weaving is the compositions created by colorful dots, which is simultaneously created on both sides of the fabric.

This weaving tradition was revitalized by the National Institute of Fashion Technology, Gandhinahar. Earlier, only hand-spun sheep wool was used for weaving Tangaliya. The process of yarn preparation was quite elaborate. The design was embedded on the fabric by twisting loose white yarns around a group of two or three warp threads by hand, giving a bead-like appearance on the surface. The NIFT project introduced to the weavers different types of readily available yarns of cotton, acrylic, and silk. They were oriented to diversify their products through workshops and design collaborations. Nowadays, the Dangasias prefer



cotton and acrylic yarn over wool since it is less expensive, easily available, and comes in a variety of colors. This yarn is mainly used for making the thread beads or dots in the Tangaliya weaving. It is also purchased from Ahmedabad. Silk yarn is used only for making products for high-end markets. Eri and mulberry silks are the most predominantly used yarns. It is mainly purchased from Surendranagar. The usage of machine-made yarn has also sped up production and has lowered the cost of the final product.

The motif vocabulary of Daana weaving (Tangaliya weaving) mainly constitutes the elements present in the community's environment. Some of the popular motifs are mor (peacock), jhaad (plant), naughara (new house), ambo (mango tree), and khajuri (date palm tree), which have a geometric and graphic feel. The designs are created by arranging these motifs in various ways. The designs look the same from both sides of the material on which it is made.
Traditional Tangaliya followed a certain color palette of black base with white dots and red borders. Later in 2007-2008, with the application of different kinds of yarn, a much larger color palette could be used by the weavers to diversify with compositions and colors as per the different layouts according to the product requirements. The repertoire also increased to suit the tastes of contemporary markets, and the product range includes saris, dupattas, garments, fabrics, etc.

Tangaliya weaving provides sustainable livelihood opportunities to traditional weavers who work within their families and from their village homes. In 2005, less than 10 families were practicing the art. Today, there are more than 100 families in 26 villages in the district. Such living craft traditions have created opportunities for revitalizing and strengthening self-sustaining village industries which are economically, socially, and environmentally sustainable, contributing towards a greener economic model.

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Tweed Fabrics

Kashmir

The handwoven tweed textiles of Kashmir are known for their fine quality weaving in geometric patterns and the use of tone-on-tone colours. Tweed weaving originated to provide for adequate clothing to survive in harsh winters of Kashmir region. Traditional tweed is a medium-to-heavy weight fabric woven with virgin wool. Manual weaving makes it a much stronger fabric and fine, unlike the mechanical weaving. These extremely warm fabrics, with excellent insulation and wind resistance against cold and wet winters, are tailored into long winter coats, blazers, jackets, suits, waistcoats, trousers, shooting jackets, caps, and even wedding suits.

The sustainability of tweed weaving in Kashmir extends beyond its manual craftsmanship and local wool sourcing to include the practice of upcycling and repurposing. In recent years, there has been a revival of traditional designs and techniques, accompanied by innovative approaches in utilizing leftover yarns and fabric scraps. This upcycling not only minimizes waste but also enhances the sustainability of the weaving process.

However, in Kashmir, traditionally it has been tailored into a traditional Pheran, the long loose gown that people use during winters. There were 800 weavers concentrated in the two villages – Inder and Badibagh – in the Pulwama district. Together they comprised the set of skilled craftsmen who have earned this area the name of tweed capital of Kashmir. In its golden age, the tweed woven in this area was exported to countries like the UK, France, and Germany until the early twentieth century. All that changed after the Second World War started as exports dried up. The trade received a new boost after the government started a policy of modernization of looms in 1975. It provided 5000 looms to the weavers at subsidized rates. Coupled with new opportunities in new markets, the weavers again started to weave quality Tweed. But tragedy struck again in 1989 when the armed insurgency erupted in Kashmir.

Tweed is produced in a variety of colours and weave effects. The fibers are woven using a plain weave or twill weave. Tweed is woven using different colored threads to achieve dynamic patterns, frequently with small squares and vertical lines. Other weave designs used in tweed include herringbones, diamonds, chevrons, cross twills, and checks. Most Tweeds are color woven from dyed yarns, but some are piece-dyed. There are many different ways to make tweed fabric, and different types of Tweed are named after the type of weaving technique or pattern. These textiles were valued not only for their rugged, thick, felted texture but also for their skilled blending of colors.

While pure wool, in both warp and weft, is the material of choice for tweed weaving, it is usually not woven with high-end wools, like cashmere. Tweed is generally woven on a frame loom. The weaves used are plain, mat, twill, etc. The counts of the yarns and the twist and colors employed vary greatly, as do the ends and picks

in warp and weft or filling. Technical advances in dyeing raw stock yarns and fabrics, together with new techniques in finishing, have resulted in a wide variety of stable and hard-wearing textiles made in different weights. After deciding on the design, the yarn is selected, and the warping process starts. Then, it is set on the loom. Weaving the tweed textile involves pedaling the loom while combining and changing the colors of the weft threads, thus creating the designs.

Traditional Kashmir tweed is 100 percent wool, unlike the ones produced in the rest of India in which viscose is also combined.

To address sustainable livelihoods of rural craftspeople, the state-run Handloom Development Corporation set up the Poshish brand as Kashmir's own brand which promoted Tweed weaves, among others, in the past, across the country and overseas.

INNOVATIONS

The Pooja Saree

Vimor

The Opportunity

Vimor is a small home-based saree business set up nearly 50 years ago in Bangalore, Karnataka. As part of its focus on livelihoods through craft, Vimor has revived and recreated antique saree designs to sustain quality, taste, and skill. The Pooja saree, worn at rituals and ceremonies, is one such effort.

The Revival Process

The introduction of the inspired Pooja saree design by Vimor began in 1976 and has continued since that time. Vimor's first intent was, in the words of its founder, “to put food on the table.. No weaver who came to our doorstep was sent away." Their skill and intent were assessed with a simple design test. Depending on the weaver's quality and capability, Vimor would give them more designs to work with. In case they were hesitant or unable to weave a difficult design, they could instead execute a simplified version of it. This new version had to be cost-effective, of good quality, and aesthetic. To start with, Vimor would pay the weaver an advance amount to make a certain number of sarees with an assured buyback, creating a risk-free environment. At every step, detailed design guidance and technical inputs were assured. This provided food and financial security for the weaver's family. Based on these confidence-building exercises, which were key to the weaver's success, Vimor continued production for a year and then handed the artisans design ownership for growth. As Vimor had tested these products in the market, the weaver was assured of some success when it came to sales. This process was altered for different regions, adapting to the weavers' skills, materials, and the end market.

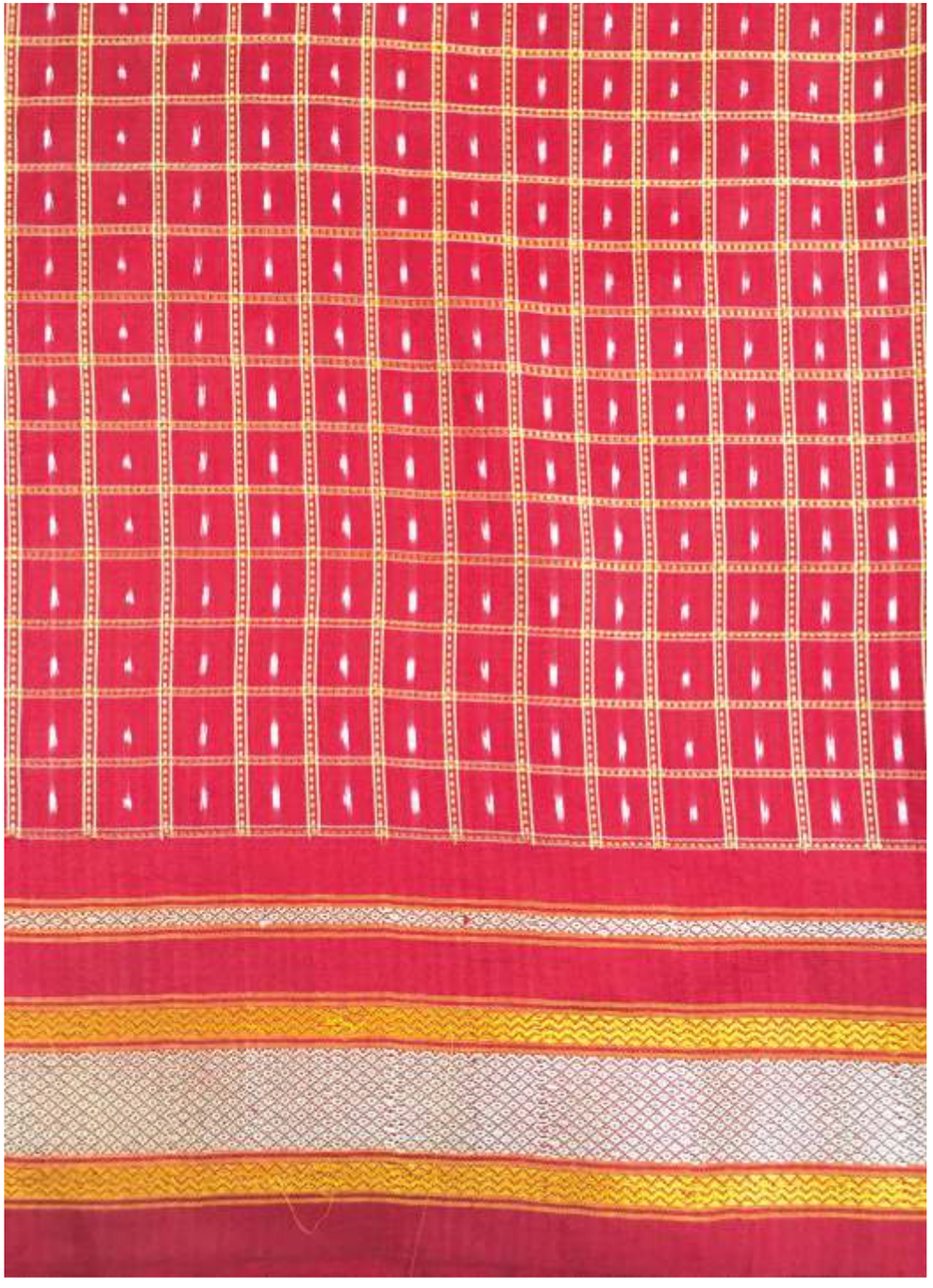
The Outcome

The Pooja saree — a result of this process — has been a hit with custom-

ers across exhibitions in silk, cotton, and polyester yardage for 44 years. It has also had a significant ripple effect on the livelihood of many weavers across regions. A key factor in this strategy has been that Vimor's name is not stamped on the designs it develops and shares. This case is an example of design impacting livelihood and textile culture through a culture of sharing and openness, which can be replicated in the handloom industry through enlightened leadership.

The Future

Pavithra Muddaya of Vimor links her experience to the Sustainable Development Goals of strengthening cultural identity, empowering women, and developing systems of responsible production and consumption.



Kala Cotton

Resurgence of a climate resilient old world cotton variety of Kutch

Cotton: White Gold or the Dirtiest Crop?

Cotton is one of the most cultivated cash crops in India, engaging about 6 million cotton farmers and around 40-50 million people in related activities. India is one of the largest cotton exporters in the world. Cotton is also known as white gold, but paradoxically, it is also considered the dirtiest crop as the highest amount of pesticides are used in cotton cultivation compared with any other crops, and its production is responsible for the emission of 220 million tons of CO2 annually. Only 2.4% of land covered under Bt cotton guzzles about 24–25% of the total farm pesticides used in the country!

Kala Cotton: A Climate-Resilient Alternative

This is not the case when it comes to traditional old-world cotton species Gossypium herbaceum or Gossypium arboretum. Wagad or Kala cotton is an indigenous cotton variety of the Kutch region. It is a variety of Gossypium herbaceum. This rain-fed, short-staple variety is highly resilient to pest attacks and diseases. It can grow in rainfall even less than 300mm and doesn't need any chemical fertilizers or pesticides, which makes it a very low-risk farming system. The farmers refer to this as “Rammol” (which means divine crop). The fiber has a cooling effect in the hot summer months.

Factors Responsible for the Decline of Kala Cotton Cultivation

Like other old-world cotton varieties, Kala cotton is also a short-staple length variety (staple refers to cotton fiber). While they are not suitable for mills designed to work on long-staple American cotton varieties, the local communities have mastered the skills to process and weave it. With textile mills taking over the handlooms, the variety started losing its significance to the long-staple American cotton varieties and later on Bt. cotton, for which markets are easily available. Due to a lack of market

and value chain, farmers also quit its cultivation to the extent that at the time of independence, 97% of cotton in Kutch was Kala Cotton and 3% was American cotton. This scenario got completely reversed by the end of the century.

Reviving Kala Cotton: A Collaborative Approach

The massive earthquake in Gujarat took a heavy toll on the livelihoods of artisans who had lost their tools along with their shelter. Khamir was set up in 2005 as an organization committed to reviving Kutch's craft heritage and promoting the livelihood value chain around it.

Satvik, another Kutch-based organization, was working with farmers to conserve local traditional seed varieties, along with Adesar Rain Fed Farmer Producer Company in East Kutch, Wagad cotton being one of them. While they were working with cotton cultivators, the need for artisans and markets was crucial for farmers to continue or move back to traditional cotton varieties. A partnership was initiated between these organizations to revive Kala cotton. KHAMIR, already working with artisans to revive Kutch's craft heritage, promoted hand spinning. It worked towards rebuilding the broken link between farmers, ginners, spinners, weavers, and the market. It collaborated with designers to create a range of eco-friendly, hand-spun, naturally dyed products that were organically certified. In 2010, Wagad cotton was branded as Kala cotton, and products were launched. But this was not as easy as said here. Along with the market challenge, there were several technological challenges as it required technical interventions to design tools that can work with Kala cotton along with rebuilding the lost skills of weavers to work with short-staple cotton.

While Wagad cotton yield is still low compared to Bt cotton, what can make it lucrative for farmers is that due to climate change, the emergence of new pests in Bt cotton is reducing the yield while adding to the input costs. Bt cotton also has high irrigation requirements. Under these circumstances, 'Kala Cotton' provides a climate-resilient alternative, which has minimal production costs. So, wherever the challenge of finding a market for this indigenous variety has been addressed through the intervention of KHAMIR, farmers are joining hands to revive this traditional variety. Today, about 60% of the looms in Kutch are using Kala cotton. It has become one of the most sought-after cotton varieties by designers in India and abroad. Designers that promote sustainable fashion have found in Kala cotton a fabric that can be used for various purposes – denims, dress materials, sarees, and so on. As a result, Kala cotton farmers have started receiving the premium they deserve. Further, KHAMIR has also set up mechanisms to provide buying assurance to the cultivators for their entire crop. This could ensure that financial reasons do not compel them to quit cultivating this old-world climate-resilient cotton variety.

Way Forward

Even with this successful reemergence of a lost heritage variety and fabric, many challenges remain before it can regain its lost glory. The task of reviving the farming, weaving, and use of Kala cotton on a large scale continues to be a complex task that requires managing several variables. This requires policy interventions to support the entire value chain, stop imitated products from being sold in the name of Kala cotton, enhance consumer awareness around its benefits, and strengthen institutional and financial mechanisms towards promoting the cultivation of this old-world cotton and hand-spinning it to create those beautiful eco-friendly fabric.

Indigenous Wool - The Forgotten Fiber

Juhi Pandey

The Issue

The northwestern and northern regions of India, mainly the desert lands and the Himalayas, have been home to many pastoral communities for whom rearing livestock was not just an economic activity but a way of life. Their livestock provided for their food and clothing needs according to the climatic conditions of the region.

The most reared animals were sheep and goats, followed by camels, yaks, buffaloes, and cows. Sheep wool, as a fiber, was the primary source of raw material for textiles in these regions. It was the main textile for the clothing of the pastoralists and other communities who lived in this region. It was the primary fiber woven by the weavers of this region.

Today, with the introduction of cheaper synthetic yarns and the replacement of indigenous wool with merino (foreign) wool from Australia, the demand for indigenous wool has diminished. Additionally, the Indian government, in 2002, opened the markets and allowed for the merino breed of sheep to be reared in India, leading many pastoralists to shift to the foreign breed of sheep, thereby reducing the indigenous sheep population.

The reduction of an animal breed causes various ecological imbalances in the region. Hence, there is a need to give attention to this situation and work towards building the local indigenous wool economy to save the breed and the lands.

Impact of Synthetic Yarns on the Traditional Value Chain

The introduction of acrylic fibers and merino wool has impacted all spheres of life - ecological, social, and economic.

The reduction in demand for indigenous sheep wool has led pastoralists to change the breed of sheep they reared, which in turn changed the

fodder needs and movement routes. With these changes, certain species of vegetation have been lost, and there has been a change in climatic conditions. Summers are now hotter, and winters are shorter, which has also altered the clothing needs of the pastoralists themselves.

The weaver community developed direct linkages with yarn vendors who began providing them with raw material in a variety that helped them increase their product repertoire for the open market. This has improved the economic status of the weaver community, raising their social status from being part of the Meghwal or Dalit community to a more prosperous class. Conversely, the pastoralists, despite being higher in the caste hierarchy, are now lower in social class due to decreased economic well-being, as the size of their livestock is no longer a sign of their prosperity or wealth.

Emerging Alternatives

In the past two decades, there has been significant research and dialogue around the well-being of pastoral communities across India and the world. This has led to actions aimed at reviving traditional value chains for these communities through design and innovation.

Alternative solutions that encourage pastoralists to continue rearing their livestock and original breeds are essential to maintaining ecological and social balance. Innovations in the indigenous sheep wool value chain include using sheep wool in architecture, as manure, and in textiles as a blend with other softer fibers to make it wearable.

In Kutch, hand-spinning of yarn using indigenous wool has been revived, also giving rise to hand-spinning of the local indigenous cotton.

Wool Revival Projects

Khamir, a craft facilitation organization in Kutch, along with its sister organization Sahajeevan, took the lead in 2016 to research, document, and analyze the local sheep wool value chain. Over a six-year process, they have successfully recreated traditional linkages between the Rabari and Vankar communities, and also engaged the textile/clothing design community to work with the fiber and textile.

Loom of Ladakh in Leh, which began as a self-help group in 2017 to create an economic livelihood model for the women artisans of the Changthang region, has developed value chains across all local indigenous fibers, including sheep, camel, yak, and rabbit. Shepard Craft in Srinagar, Kashmir, works with the Gujjars and Bakerwals to revive their crafts of hand-spinning, handloom weaving, and embroidery, and also trains women of the communities as tour and forest guides to provide alternative livelihoods.

Echostream in Sikkim, through a NABARD-funded project, revived the local sheep wool value chain for a community called Chubha in south-eastern Sikkim. They have established a local cooperative in the village, and their sheep wool products are marketed under the name Chuba Ko.

Looking Ahead: Climate, Identity, Alternative Growth Models in a Changing Market

The need for reviving the indigenous sheep wool value chain is more crucial than ever due to the clear imbalance in our climatic conditions, which impacts both urban and rural communities.

The homogenization of craft systems through the introduction of "easy," "cheaper," "cost-effective" yarns into handloom clusters has devalued local materials, leading to a competitive market scenario and loss of identity and uniqueness for handloom crafts. This has resulted in customers viewing handloom products with mistrust and skepticism regarding authenticity and purity.

We need a robust policy and a change in the working system for rural livelihood schemes formulated in offices in Delhi for villages in Arunachal Pradesh.

We need to create a larger movement among civil society organizations working in the crafts sector to invest time and resources in building traditional value chains. Educational institutions of science, market, and design must collaborate to facilitate this learning in young professionals, encouraging them to look inward for professional growth and success, rather than seeking outward foreign glamour.

Natural Dyeing of Textiles

Uttarakhand

Avani is a social enterprise working in 108 villages in Bageshwar and Pithoragarh districts of Uttarakhand since 1999 when it was formally registered. Their main initiative has been to create sustainable livelihoods based on local handicraft skills and resources of the local Shauka and Bora Kuthalia communities. Livelihoods are based on the cultivation of natural dyes and herbs, processing of dyestuffs, dyeing, spinning, handloom weaving, and knitting.

These communities traditionally have been involved in hand spinning and weaving of natural fibers like wool, pashmina, and hemp. In the past, the Shaukas lived a nomadic life and were part of the thriving Indo-Tibetan trade before Tibet was taken over by China. Their livelihood depended on processing animal fiber through spinning and weaving, for trading. They traditionally used drop spindles and foot-operated Bageshwari spinning wheels for spinning yarns. For weaving, pit looms and waist looms were used. Some of the traditional products were Tibetan sheep wool carpets and blankets, hemp fiber sacks, and floor coverings. Also, hemp was a popular fiber grown in the Kumaon region which the agrarian communities processed. However, they stopped the practice because of the ambiguous legal framework around the growth of Indian hemp.

Avani's interventions focused on reviving and innovating traditional processes and sustainable use of natural resources through solar power use, water recycling, rainwater harvesting, and promoting hand skills. To revive the traditional craft they trained the local communities who worked with hemp, to work with silk and wool in a profitable manner. Spinning and weaving of wild silks such as tussar, eri, and muga were also reintroduced. With their focus on using local raw materials, Avani has tried to use mostly Tibetan sheep wool and Garhwal wool that are from the sheep in the region. However, due to the roughness of the wool, they also use the softer merino which is imported. A small product range

is in the pashmina from Ladakh. Silks such as eri, muga, and tussar are also blended with the wool.

To bring in process improvements and reduce drudgery, they developed solar-powered spinning for home use in the villages, increasing productivity. For product innovation targeting modern markets, they also introduced frame looms to produce wider textiles. The existing knitting skills were used to produce simple products in silk and wool. Local tailors were trained to produce high-quality garments and home accessories.

The knowledge and skill of making natural dyes had also existed in the Shauka community for hundreds of years. However, mass-produced, cheap, chemically dyed products had led to disappearing skills, and depleting markets. Avani invested in R&D to revive the old skills of natural dyeing. Earlier the color palette of these dyes was limited to browns, yellows, and pink. Avani developed a wider color palette with research on more than fifty local plants producing brown, yellow, orange, red, blue, violet, and green, etc. They started using the dye materials not only for textile dyeing but also for producing eco-friendly, plant-based colorants for use in different industries, such as cosmetics, art supplies, and pharmaceuticals, thus diversifying markets and creating new market opportunities.

Today, Avani includes a network of artisans and farmers who work together to grow, process, design, and create eco-friendly, handmade, sustainable products that generate income for local communities. Women constitute 85% of their artisans. Avani has worked directly with 108 villages, benefiting 4,540 people and indirectly impacting 22,700 people. Avani has also organized the artisans into a cooperative named the Kumaon Earthcraft Self Reliant Cooperative in 2005. More commonly known as Earthcraft, they produce shawls, stoles, mufflers, home furnishings, in addition to garments for men, women, and children. All Earthcraft's products are handwoven and naturally dyed, and many of the yarns are hand-spun.

Avani has its main production center at Tripuradevi, and has six field centers, all spread out within 40 kilometers in the villages of Digoli, Sukna, Dharamghar, Chankana, Thanga, and Basti.

As both water and energy are scarce resources in these remote mountainous areas with difficult terrains, Avani has simultaneously implemented systems for conserving both. They installed solar lights in the villages and trained community groups as solar technicians for the upkeep and distribution of the technology. More than forty local youths got trained as solar technicians, about half of whom were young women. The water used for dyeing and other uses, at the central set-up of Avani, are fully treated and recycled in the cultivation of organic vegetables and dyes. The campus has in-built infrastructure for harvesting rainwater. Approximately 7 lakh liters of rainwater are collected annually which takes care of 75% of their water requirements.

The cultivation of natural plant dyes does not use the chemical farming methods of conventional agriculture but is grown with natural herbicides like soap nut and neem. Some dye extracts like walnut hulls are collected from the ground waste. The dye wastes are used for composting since they are all-natural. Yarn and textile wastes are used innovatively in non-woven fabrics, tassels, and insulation of solar water heaters. Avani enjoys certifications such as GOTS, Silk Mark, and Craftmark that have further enabled the eco-friendly branding of a fair business initiative.

Malkha Cotton Weaving

Telangana

Malkha, set up in 2003, works with cotton farmers, yarn makers, weavers, dyers, and trained staff in and around 200 km from Hyderabad, focusing on handspinning, natural dyeing, and handweaving. Ellanthakunta, Thangalapally, Sircilla, and Jangaon are the main regions where Malkha actively works.

Malkha has been a best practice in the sector for establishing an alternative to the industrial model of making cotton. Their fabric is woven by weavers on handlooms and spun locally from cotton grown by small-farming families. The cotton is bought from the local Jamikunta cotton market where the farmers sell ginned cotton, about 80 km from the spinning units.

Malkha also wishes to restore a local, robust, and resilient handloom cotton industry by reviving the indigenous variants of cotton and weaving those into textiles. As per Malkha's founder, Uzramma's talk at Columbia University, indigenous varieties of cotton that had earned India the reputation of a cotton-producing nation in the past are all but gone; farmers are forced to grow only a specific variant of cotton suited for spinning mills, i.e., American Bt cotton - a genetically modified variety sold by the American agrochemical company, Monsanto, which is also known for its use of child labor in the cotton fields. She explains that, "This cotton is not best suited for Indian conditions; Indian variants in the past were rain-fed and not dependent on irrigation, besides being grown interspersed with other food crops. When the current generation of crops fail after farmers make big investments in buying seeds, fertilizers, pesticides, and irrigation, they are driven to suicide" (Menon & Uzramma, 2017).

Malkha has also partnered with the Centre for Sustainable Agriculture (CSA) to innovate with organic cotton for yarn. CSA is a professional

resource organization engaged in establishing models of sustainable agriculture working in partnership with NGOs and Community-Based Organizations.

Malkha exclusively uses natural dyeing sourced from a variety of plant-based products: Indigofera tinctoria for indigo, Acacia catechu for brown, Terminalia chebula commonly known as myrobalan (harda), Punica granatum (pomegranate rind) for yellow, and Onosma echioides (kasimi) for grey. Red, made of non-toxic alizarin, a by-product of coal tar, is the only Malkha dye not of vegetable origin. Malkha buys indigo dye from the indigo growers in Puducherry, Tamil Nadu, and other dyes locally. The challenge of dye markets flooding with German indigo which is hard to differentiate from natural indigo is addressed by Malkha by putting in appropriate tests for checking authentic natural indigo.

No chemicals are used at Malkha except for detergents used for washing. Each step in the Malkha process - hand spinning, weaving, dyeing, and printing plays a big role in imparting exclusive qualities to the fabric which is in great demand. The fabrics also do not require much maintenance, and can be simply washed in cold water or with a non-detergent soap to maintain its color vibrancy and durability, and does not require ironing.

Malkha upholds the importance of strengthening local production systems as the only alternative to bringing down polluting supply chains and higher carbon footprints. They demonstrate conscious choices of technology and examining and re-examining the production processes end to end to innovate more efficient production methods. For example, removing baling and unbaling from local cotton production has brought down energy use immensely.

However, Malkha's scale is small compared to the potential of the region, and requires more study, research, and review in the current context of sustainability to learn the best practices and mobilize leadership for greater impact in terms of sustainable economic, social, and environmental improvements.

REFLECTIONS

Cultural Identity, Handlooms and Sustainability

Lessons from Tai Communities in Assam

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Handlooms are a part of the rich textile heritage of India. They play an important role in cultural and social identity and are distinctive to different regions in the country. According to un.org, sustainability is defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

The sustainability aspect of handlooms is studied here with reference to the usage of local material, environment, continuity of tradition, and community identity. The textiles produced by two communities - Tai Khamyang and Tai Turung in Assam, North East India are used as examples. The village where the study was done is located in Rajapukri Sarupathar in the district of Golaghat in Assam. Tai, meaning free, are a Buddhist community who have migrated to India over the last few hundred years from South and South East Asia. The handloom continues to be woven in the villages of the Tai community as was seen in this village. Each house had a loom and most were operational.

The Tai Khamyang and Tai Turung communities of Tai community live in Assam in the northeastern part of India and are a small ethnic group in the region. Their source of economic activity is predominantly dependent on agriculture and weaving. The lifestyle is self-sustaining and they rely on the produce of the land. They grow rice, vegetables, and fruits for personal consumption and certain cash crops like betel nut, for trading. Pulses are bought from markets in nearby towns. Most of the homes in the region are made using bamboo and mud and they have a loom. Grains are stored in stilt houses made of bamboo and known as 'Bhoral'. The textiles woven by the Tai communities of Assam particularly flourished under the royal patronage of the Ahom regime.

Like other parts of Northeast India, Assam is a state where weaving is exclusively done by women. Women of the Tai Turung and Tai Khamyang communities are proficient weavers. The weaving is done on handlooms and is done for their own consumption and products are sold to members of their own community who are spread in different parts of Assam and Arunachal Pradesh. The backstrap loom and loin loom were used traditionally; however, fly shuttle looms are mostly employed for weaving these days. The yarn for weaving in the village is sourced from Guwahati and Golaghat and the fiber traditionally used was cotton. Over time they have adapted to include fibers such as muga silk, eri silk, rayon, and acrylic.

The handlooms used across the country have a capability to adapt to different fibers and include a plethora of patterns in weaving; however, the fabric produced has a continued regional identity. The dyed yarn is obtained in hank form and traditionally indigo dyeing was also done locally in vats to produce a black color. The process of preparation and weaving of cloth is undertaken manually. The initial steps of the making process include sourcing of dyed yarn in hanks. To smoothen the yarn and remove knots, it is spun on a 'sereki' – a cylindrical shaped bamboo instrument. The yarns are then spun and transferred onto smaller spools called bobbins. The yarn from each bobbin is later used around the warping drum before being set on the handloom. In the case of a fly shuttle loom, the weft yarn is wound on the shuttle and is thrown from one side to the other to create designs. The main fabric is woven in a plain weave. Each individual motif is woven by interlacing an extra or separate weft yarn into the warp yarn leaving no floats at the back of the cloth. This is a technique similar to loom embroidery and requires dexterity and patience. Inspiration for designs comes from flora and fauna, animal and bird figures, geometric shapes, astronomy, and Buddhist symbols. Some

of the common motifs are gamusa phul, dobua, buta, kosa, kankuri, mukhia phul, and diamond-shaped patterns. Colors are usually bright and include red, yellow, and black; on white and natural colors as the base.

Both men and women wear the traditional textiles woven using the looms. The women wear a mekhela (Umbabu), Riha (Phai Bai), waist belt (Phai Bai or chai-kaap), and chadar (Umbapai). The stitched upper garment seems to be a recent addition to the otherwise unstitched and draped ensemble. The riha is one of the most important pieces of cloth worn by women. It is a long thin fabric with borders along the selvedge and wider borders on the two ends which may be simple or elaborate. It is predominantly white or ecru base and the design is added using brighter colors such as red, green, black, and yellow. It is draped over the lower garment at the waist and covers the hips. The riha is symbolic for a married woman and every married woman is observed wearing the same in the village. Weaving as a craft is dependent on local resources such as the availability of dyed yarn and sericulture. Traditional female costumes are woven in vibrant tones in cotton, eri silk, muga silk, and pat silk. A more subtle palette in cotton and eri silk is adopted for male costumes. Handwoven chyu is additionally worn by both men and women. The textiles worn by men include pha-loy or dhoti, pok-kho or turban, and pha-lung – a yardage wrapped around the hips, which resembles a skirt.

"Innovative weavers skillfully blend local myths, folklore, and faiths as

woven symbols and imagery in the fabric that creates a sense of identity amongst the local community and aids in communal harmony and integrity which is fundamental to sustainability. These not only promote local economies but also generate local employment further restraining rural-urban migrations." (Nallaval Balaji

Some of the key factors contributing to the sustainability of handlooms from the study of the textiles produced by the Tai communities are:

a) Amongst other things, the woven textiles of the community have been a way for the groups to preserve their ethnic identities while embracing their new homelands. There are norms for wearing dress and in the village all women dress in the traditional mekhla chader with the married women wearing the Riha. The mekhla chadar is a distinctive style of dress in the state of Assam and represents an unbroken tradition over generations. It is seen that the usage of handlooms by communities who produce them gives a great impetus to sustaining them.

b) Weaving contributes to economic growth for the communities as women produce cloth for selling, which is a source of livelihood for them.

c) The skills of weaving are being learned by young girls and they start to learn at the young ages of 10-12 by sitting alongside their mothers who are weaving in the verandah of their homes. In this way, tradition and skills are carried from generation to generation. The artisan community contributes to the preservation of knowledge as they share it with future generations. Learning from their mothers and grandmothers and other village women, the weaving practice allows them to express their creativity and identity.

The handloom produced by the Tai community is an example of cultural identity. It weaves the social and economic system together. They are a part of the social fabric. Changing social patterns are inevitable and would influence clothing patterns which are dictated by unwritten norms. Taking these fabrics to new markets in the same and new forms would sustain the continuation of the practice and perhaps preserve the tradition of handloom weaving among the Tai community.

Keywords: *cultural identity, sustainability, tribal weaves*

Handspun Handwoven

A Coming Together of the Hand, the Heart, and the Head

Ṛta Kapur Chishti
Author / Research / Developer

We are living at a time when global warming is upon us and climate change is very much a reality in the present. The condition of the soil bereft of its natural ingredients with overuse of pesticides and fertilizers, as brought into focus by Sadhguru of Isha Foundation, Coimbatore, over the last few months. This on the one hand and the complete collapse of the Sri Lankan agri-economy with the complete and drastic shift to organic is a lesson 'in playing with nature'. Nature is a hard taskmaster, as it does not allow for drastic decisions nor constant pressurizing with increasing population growth and its food demands. It is all about subtle balances that are inherent in nature and us becoming a part of it in order to reap the harvest.

It is also a time to stop measuring all success and failure in quantitative terms of GDP on a nationwide scale, and breaking down the production of natural foods and raw materials in terms of regional capability and social-economic well-being. A balance between high investment large farm holdings, medium and small agricultural practices relevant and appropriate to each area. The same principle applies to forest produce which should be in the care of groups of villages who can, in accordance with their population and proximity, maintain the eco-balance between animal, human, and forest products, including food, wild silks, natural dye sources, grasses, and roots useful for loom accessories and weaving-related needs.

Sustainability, a term being frequently used today, would have to necessarily cover the entire span of human lives who are procuring or cultivating raw materials from the forest, earth, or animals which include wild varieties of silks and reared silks: *eri, tussar, muga*; local varieties of cotton excluding the hybrid and GM cottons; and wools from camel, goats, sheep, and antelope. Thereafter, those who are involved with processing them by hand to clean, comb, card, hand-spin/reel them into yarns, dye, size, and weave them in techniques that are not easily or economically replicable by machines. This is the area to be explored and expanded in the quest for sustainability as they can provide a distinctive quality edge which is still possible in India today.

The world industrialized over two hundred and fifty years and India is still advantageously placed with a 'fast' and 'slow' production sector that is sustainable side by side, both of which can grow for the benefit of its people and the world. This is in the context of the increasing pressure to lure and incentivize those in the hand sector to turn from hand to mechanize, from handloom woven to power-loom woven for quantitative benefits, not qualitative improvement, offered to handloom weavers. Even in the city of Banaras, the cradle of many handloom techniques from within India and beyond, this has been done. We are cutting at our own roots by these strategies of enticement for short-term benefits that will destroy whatever levels of skills that still remain with spinners, dyers, weavers, and all those involved in preparatory processes. After all, power-looms are only outdated mill machinery sold in handloom areas that have access to electricity, while the mills upgrade their mill machinery.

We are late in the industrializing game and trying to do in seventy to a hundred years what happened in the rest of the world over two hundred and fifty years. With the exception perhaps of China and other Southeast Asian countries who have emulated them. China could not have done it without heavily militarized control over its people and economy and others have kept the veneer of democracy with a military in the wings such as Thailand, Indonesia, Philippines, and others. Today, in an attempt

to capture world markets by making the 'cheapest' in volume production where has China landed! Twenty-five cities under lockdown not caring 'if the cat was black or white as long as it ate mice', its people have undergone several forced transformations en masse! Suppressing this and that at different periods of enforcement.

Are the numbers of people being displaced out of hand-based vocations, capable of being absorbed by the mechanized sector in India? They were in self-supporting professions and are now being referred to as 'jobless' though they were never in the job sector.

The distance between the wealthy and well-to-do and the poor is also growing by the day and we cannot avoid the reality of vocations of low

investment, high quality that can have a widespread presence and may not provide a highly competitive wage as say the mechanized sector, but at least a decent humane living wage with respect and dignity to the practitioner and the family. Hand must never be pitted against machine; it must necessarily be used to produce something distinctively unique that a machine cannot. This is why from the cultivation upwards, we must widen the cultivation of local cottons that require little water, and no pesticide and fertilizer support: silks that produce a wider hue of color and texture by hand than are possible only with mulberry and wools from the coarsest to the finest that camel, goat, sheep, and antelope can produce. India could be the crucible of diversity in stark contrast to the increasing uniformity that mill and man-made fibers are offering at not very humble prices. We could nurture and offer the finest in handmade if it was authentic and distinctive at a price that is commensurate with the effort that goes into its making. We would be paying our salutations to Mahatma Gandhi not only in name but in actual fact, by recognizing the truth of his vision, by providing a dignified livelihood for all those who are prepared to go 'slow' not because they cannot go 'faster' but to make life more sustainable from the very inception to the final outcome of a fabric.

The circumstance of our reality compels us to recognize his vision not the fact that we belong to the same country that made him a 'Mahatma'. For whom we at best are able to organize a twenty-four-hour spinning demo at his Samadhi on 2nd of October each year and forget about him the rest of the year. The quantities of fine textiles that could be produced by hand in any case would be minuscule in terms of GDP in India and abroad and could easily find a market in either context. If we keep the peak of the skill pyramid alive, we could have a mid and base level of spinners, dyers, weavers, who would keep their aspirations and skills alive with the hope

of moving upwards both in social and economic terms. The combination of hand-spinning and hand-weaving in techniques that are still not economically viable on machines would not only create a renewed vigor for those left out of present developments in IT and industrial circuits. They could also become the R&D base for experiments on thirty to fifty-meter warp lengths with innumerable weft possibilities, that are not feasible on high-volume machines in the mill sector.

Keywords: *Value chain – Indigenous Fibres. Khadi + examples from across India + climate change, employment dignified, development model*

Social & Environmental Sustainability

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Sustainable development is the overarching paradigm of the United Nations. The concept of sustainable development was described by the 1987 Bruntland Commission Report as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The effects of climate change have prompted a shift towards responsible production and consumption globally. Today, consumers are looking for green products that cause minimum harm to people as well as the planet. Driven by consumer demand, it becomes pertinent for the manufacturing sector to adopt a holistic approach towards sustainable development, one that encompasses environmental, social, and economic dimensions.

India's traditional handloom sector has the attributes of a 'green economy', with its USP of being local, indigenous, culturally rooted, low energy, and socially and economically enabling for the communities who have held these knowledge systems for centuries. However, some of the inherent processes in the handloom sector are resource-intensive and generate a lot of waste, causing pollution.

Additionally, the green attributes are being compromised in a bid to compete in the fast-paced markets through forced dependencies on external markets for synthetic raw materials, chemical dyes, processing chemicals, etc. Washing and dyeing are very resource-intensive processes, using gallons of water and electricity for heating. Huge amounts of dyes are lost to effluents due to inefficient dyeing and finishing processes, leading not only to wastage of resources but also to the release of toxic chemicals into freshwater sources. The textile industry around the world is accountable for discharging 40,000 to 50,000 tons of dye in the water bodies. The toxicity of the dyes and chemicals used in textiles and inappropriate discharge of such waste is an occupational hazard, leading to skin diseases and respiratory problems among many workers. Moreover, waste is also generated in terms of yarns, fibers, and fabric, which generally ends up in landfills.

However, the sector was quick to realize its environmental impact and improvise quickly by embracing green processes and technologies to make eco-friendly textiles. Many eco-friendly fibers have been invented which do not require the use of any pesticides or chemicals e.g., bamboo, hemp, ramie, mud silk, etc. A lot of natural and Azo-free dyes are being used. Rainwater harvesting, post-treatments of wastewater, and the practice of reusing dye bath water is being adopted, to optimize the use of water. Moreover, the sector is working at minimizing its waste through reuse and recycling.

AIACA (The All India Artisans and Craftworkers Welfare Association), an apex body in the craft sector, has been working on a range of issues since 2004, to promote market-led growth for the crafts sector and increase incomes and improved living standards of crafts producers. AIACA launched Craftmark in 2006, as a National certification program for genuine Indian handcrafted processes, undertaken in a socially responsible manner. Registered under the Trademark Authority of India, it is awarded by AIACA India and has been running for 16+ years now. Craftmark Certificate authenticates that the products are genuine Indian handicrafts; conform to sector-wide minimum standards and norms for labeling a product as handmade and are made in a socially responsible manner, ensuring that wages being paid to the artisans are as per the minimum wages specified by the Government and there is no child labor involved. In 2014, AIACA went a step further and started discussing the setting up of Green Standards in the sector and building the capacity of

the enterprises to conform to these standards.

Subsequently, work on Craftmark Green, a certification to promote development and promotion of environmentally friendly and sustainable enterprises in the handloom and handicrafts sector, has been underway since 2018. The idea is to restore the original values of the crafts sector as a green sector that uses local knowledge and local materials in an eco-friendly manner. The approach is to work with different materials used in the handloom and handicraft sector, like textiles, wood, metal, stone, clay, and natural fibers and draw green standards for working with these materials by defining the minimum criteria, desirable criteria, and the best practices. Research has been initiated and standards for textile and metal have been finalized. The idea was to verify the production process, identify the gap areas where the impact on the environment needs to be minimized, conduct research to come up with green solutions for the gap areas, and initiate green pilots with selected clusters.

The green solutions will optimize resource utilization and minimize the harm to the environment through waste disposal techniques and the introduction of natural dyes. It was envisaged that each green pilot would be conducted at diligently selected clusters, with the potential of adopting green solutions, and would work at installing green infrastructure and

building the capacity of the enterprise and its artisans to use the infrastructure. Each pilot would be successfully documented to assess its impact on the overall efficiency of the enterprise and the economic impact of the intervention on the artisans, and its replicability.

The enterprise will be verified for Craftmark Green Certificate, on successful completion of the pilot. The mark would be an attestation of an authentic hand-made product, made in a socially and environmentally responsible manner. Not only will it protect the environment and the social well-being of the artisans, but will enhance their economic potential by helping them compete in the fast-emerging niche conscious markets, thereby fetching them premium prices for their products.

Five green pilots are being initiated in the textile sector and it was heartening to see how the hands that weave the beautiful pieces of fabric were eager to adopt the green processes and easily embraced the idea of appropriate technology to make their products totally "green". On the other hand, it was very encouraging to get support from corporates and institutional organizations, to make this dream a reality. Through Craftmark Green, AIACA will embrace the concept of sustainability in totality by ensuring social, economic, and environmental sustainability in the handloom and handicraft sector.

Keywords: *green mark, Craftmark, certification, living standard*

Reviving Muga

Golden Silk of Assam

Sampa Das
Sampa Das Collections

"You have to revere handloom, revel in its texture, retrieve the tradition, and then when you revive and recast—the end product is something that becomes a work of art to preserve and pleasure in."

Among different varieties of silks produced in the northeastern state of Assam since ancient times, Muga silk is one of the rarest and finest silks. Most of the *Muga* silk is produced in Lakhimpur, Dhemaji, Dibrugarh, Sibsagar district of Upper Assam, and Kamrup and Goalpara districts of Lower Assam.

The silk, due to its luster, natural golden hue, and sheen, is popularly known as the king of silks. It is highly durable and sometimes outlives the wearer! Durability is one of the central aspects of current sustainability discussions around the textile value chain. Another astonishing characteristic of Muga silk is that it improves with every hand wash and its luster increases after each wash. *Muga* silk is produced from the cocoon of the *Muga* moth of silkworm *Antheraea assamensis*. What makes *Muga* silk different from other silk varieties is that, unlike other silk varieties, which are obtained from cultured silk worms, larvae of Muga silkworms feed on local wild plants *Som* (*Persea bombycina*), *Soalu* (*Litsea monipetala*), and *Dighloti* (*Litsea salicifolia*). These worms are endemic to the region and are not found anywhere else. Recently, Muga Silk also received a GI tag.

Muga: Cultural Pride of Assam

My love for handspun fabric started at a very early age as I grew up seeing my grandmother taking the lead in promoting the "Patriotic Fabric" khadi. Later on, as a young lady, I was passionate about collecting traditional weaves not just from different parts of the country but across the world, wherever I traveled. That's how I found *Muga*, the traditional treasure of Assam. The history of Muga weaves dates back to the Chutia and Ahom dynasties that ruled Assam about 600 years ago. During the British era, Assam enjoyed a high reputation for producing fine silks and *Muga* was in high demand in Europe during the 18th and 19th centuries.

Once in Assam, weaving was considered an essential skill that the young girls would inherit from their elders. A loom was a pride possession in every home. Generally, at noontime, post-lunch, women would gather and weave together while sharing their lives. *Muga* weaving was not for livelihood but it was a creative expression of one's own self. Young girls would weave their own Bridal Mekhala Chadors, typically in white and embellish it with zari.

Challenges

The worms are highly sensitive to variations in temperature and humidity. They grow well between the temperature range of 25°C to 27°C and between 75% to 85% of humidity levels. Thus, variations in these climatic parameters disrupt the life cycle of the silkworm, adversely impacting the life cycle. Due to current changes in climatic conditions, temperature increases and longer dry periods are becoming more frequent in the region. This is affecting the production of Muga, as silkworms do not survive higher temperatures. *Muga* worms are also sensitive to pollution and hence factors such as increasing anthropogenic pressure like urbanization, setting up of brick-kilns, and using pesticides in surrounding areas, also adversely affect the survival and growth of the worm, even leading to large-scale premature death of Muga silkworms.

While traditionally every home in rural Assam possessed a loom and weaving skills were passed on from one generation to another, women

traditionally were expert weavers and weaving skills were considered a matter of pride. With modern influence, this sense of 'cultural bondage' is weakening and the young generation is losing its interest in weaving. In the process of trying to create intrinsic designs, it was a challenge to find good artists as many of them had left weaving and in several cases, even the looms were no longer in function.

Muga silk weaving is a highly skilled, long, and laborious process. Making one *Muga* silk sari takes about a month to 45 days. While costs in international markets are high, the weavers still get very little share.

Further, as Muga cultivation is highly sensitive to climate change, the associated livelihoods also become extremely vulnerable. In case of failure or loss in *Muga* yield, the farmers' income is at stake. This is also one of the major factors deterring the young generation from adopting *Muga* cultivation and weaving as a livelihood. Traditional Muga-cultivators in Upper Assam are shifting towards tea cultivation, replacing *Muga*-seed cultivation with small tea gardens. This has further increased pesticide usage in the region which is extremely harmful to *Muga* cultivation.

Recommendations to Revive

As an artist, one has to travel to the untrodden areas, meeting those tribal and indigenous communities who are custodians of such vivid traditional weaving skills, to revere their cultural expressions. And then when one tries to revive it, innovating designs that conserve the tradition in a creative way, the fabric created becomes a treasured piece for those who own it. This would bring the traditional weaves to the forefront of sustainable fashion.

It is worthwhile not to alter some of the traditional motifs as they represent cultural history. A classic example of this is the Kingkhap design—consisting of two lions facing each other. Inspired by the Ahom dynasty, the design signifies royalty and grandeur of the dynasty and is perhaps one of the oldest *Muga* silk designs.

It is as essential to inculcate respect for traditions as it is to build skills of artisans and the young generation so that they can take pride in weaving. This is very much a part of the Cultural Revolution that is required to revive *Muga* and other such traditional weaves. The education system and educational institutes should play a positive role in this by integrating such aspects as part of education.

Building institutional mechanisms and creating marketing platforms that can help such artisans to come together is required. Further, a policy framework is also required to ensure proper remuneration and recognition to the Muga cultivators and artisans working across the entire value chain.

Way Forward

According to the Central *Muga Eri* Research and Training Institution, *Muga* cultivation and weaving provide the livelihood of 185,000 families in Assam. About 65 percent of those making a living from *Muga* are women. In recent years, the demand for *Muga* has increased, especially in the international market along with the domestic market. Considering the durability, natural origin, and its super lustrous natural golden color, *Muga* silk revival can provide great avenues for a textile that is eco-friendly and a sustainable livelihood for thousands in the region.

Keywords: *Durability, Climate Change, Indigenous*

Sustainability in Traditional Textiles

Anita Dongre
Founder, House of Anita Dongre

To understand the unique, layered nature of what being sustainable in India means, it is essential to look at traditions and iterations that have been practiced for generations. Looking back now, I can see that when I was young, my family had a sustainable mindset - things were used mindfully, and judiciously. Whatever could be made at home, whether it was food or anything else, was never brought in from outside.

Clothes were treated with respect and passed on from one person to the next. There were always inventive ways found to make do and mend, or repurpose garments that could no longer be worn. Nowadays, with rising disposable incomes, easy access to packaged goods of all manner, and a fast-paced lifestyle, sustainability has become more of a trend than an intrinsic mindset. Yet, the truth is that in India, upcycling, thrifting, and recycling have been a way of life, and the craft is ubiquitous in our culture too.

As a designer, when I began to work with organizations such as SEWA, and converse with artisans, I realized how sustainably and mindfully they live and work. Again, everything from the fabric and colors they choose, to the manner in which clothes are worn and preserved, is shaped by the climate, landscape, and socio-cultural realities around them. These are craftspeople who have inherited their skills over generations, they work within time-honored idioms, and their products are indelibly influenced by the environment around them.

Just as cuisines and the ways in which ingredients are used vary from one region to the next and home to home, crafts, too, are deeply embedded in their environments. From village to village, skills and resources shift. You cannot isolate craft from its *terroir,* and changing the design vocabulary of artisans is impossible. To work with them requires you to absorb and adapt to their language. I am very mindful of the fact that an artisan uses cloth, and stitches in a certain way and I need to adapt to that idiom, instead of the other way around. This is, perhaps, one of the greatest challenges of working with traditional artisans—you need to be patient and build a new vocabulary together.

We work with both skilled artisans and unskilled workers. Providing women artisans with sustained, gainful livelihood opportunities in their own villages, without their having to migrate elsewhere is a very important part of what we do. We also train unskilled labor through our foundation, by setting up community centers in their villages and providing them with employment opportunities.

What I hope for, personally, is that sustainability becomes a way of life and work. While it is encouraging to see growing concerns about our world and the efforts people are making to understand and alleviate issues, it is only when we return to a mindset rooted in sustainability that real change is possible.

Keywords: *Fashion, social sustainability, women empowerment, conscious production.*

Education for Artisans and Consumers

A Path to Sustainability

Judy Frater
Founder Director Emeritus, Somaiya Kala Vidya, Founder Director of Textiles

Education is almost always the sustainable answer to deep-rooted problems. As the climate crisis looms, over-production and over-consumption contribute to the accumulation of waste that critically burdens the environment. A radical shift of focus from quantity to quality is needed to slow the global trajectory toward self-destruction and begin sustainable practices. Value is at the heart of sustainability; people preserve what they cherish. A return to buying better and consuming less can be cultivated by value-centered education.

Handcraft has the potential to lead a movement toward economic, social, cultural, and environmental sustainability. Traditional handcraft processes use minimal to no fossil fuel energy and produce little to no wastage. Equally important, traditional artisans created for durability and personal meaning.

But in India today, sustainable handcraft livelihoods are threatened by undervaluation. Industrialization of craft has led to over-production, overuse of natural resources, and waste. The push to make craft "affordable" has meant that to maintain even modest livelihoods, artisans must produce in quantity. The fundamental characteristic of handcraft is that it is made by people. There is a human limitation to scale. Each year artisans leave their craft because it does not offer adequate income or recognition. Therefore, for craft to remain viable for artisans, it cannot be made cheaper; rather, it must be made more valuable.

A radical shift to focus on values requires cultural adjustment, and thus coordinated education of producers and consumers. My efforts toward this end began with education for artisans of the Kutch district in Gujarat. Concerned that commercialization was devaluing craft for the artisans who made it and devaluing artisans themselves, in 2005 I began a year-long program in design education for traditional artisans. The course teaches artisans to recognize and value their cultural heritage, and to innovate within its parameters as they define them to reach contemporary markets. A key objective of the educational programs is to encourage individual expression as an alternative path to success as opposed to scaled-up production. By learning to innovate within traditions, artisans can ensure the integrity of cultural heritage. By connecting to contemporary markets, they can gain recognition as well as income.

The experience of 15 years of imparting education to artisans has shown that graduates of the program have clearly increased their incomes as well as their social standing. They have found markets in established companies, with designers, and on online platforms. They have participated in international and domestic events. They have received national and international awards and gained recognition in their communities. Graduates have realized several sustainable development goals: no poverty or hunger, good health and well-being, quality-appropriate education, decent work and economic growth, and innovation. They are aware of environmental issues and prefer ecologically sustainable practices. And they have built a community of artisan designers.

Because craft traditions are human-powered, continuation rests on the next generation of artisans. The most important impact of design education for artisans of Kutch is the return of the next generation from urban jobs and industries to craft as an excellent option for livelihood, rather than a last resort. Another important outcome of the program is the diversification of craft traditions. Over the past 15 years, all graduates developed clearly recognizable individual styles within their shared traditions, which has expanded markets and extended economic benefits

to more individuals. Artisan students love to innovate, and they do so successfully when they know who their consumers are.

The domestic market offers a sustainable livelihood to artisans. They can reach it without the need for intervention, observe its workings, and learn to innovate appropriately. Yet, despite economic success, artisan designers struggle with the contemporary markets to which they have access.

Addressing this challenge begins with understanding craft consumers and illuminates the fact that sustainable practices require education in values for consumers as well. Crafts Council of England studies in 2010 and 2020 demonstrate that in the UK, ethical consumerism, wellness, and mindfulness are important to craft buyers. People consume crafts seeking authenticity, experiences, and ethical and sustainable creation. They choose craft because of its meaning and human connection. Increasingly, motivations for buying crafts are more maker-focused. In short, craft consumers want cultural consumption. They value personal connection and individual expression.

The sustainable way to expand the market for crafts is not to scale production and consumption, but to educate more people to buy better and consume less. Education of the domestic market in India must bring into focus values of ethical consumerism and mindfulness: concern for the environment and humane working conditions, appreciation of cultural heritage, and value for the durability of products and personal connection.

The traditional market for handcraft in India has elements to which we can look to change patterns of consumption. Generations ago, artisans interfaced with traditional clients whom they intimately knew. They focused on creating the best, longest-lasting product for a known and respected user. Clients shared artisans' standards of evaluation and could see fine variations in how each artisan executed a woven dhablo or printed ajrakh. Traditionally, personal recognition and appreciation were exchanged along with payment.

Efforts toward a sustainable craft ecosystem must now focus on a two-pronged education that fosters both excellence and independence of artisans and cultivates consumer cognizance of the values of craft. In a sustainable craft ecosystem, makers and users must share values centered on cultural heritage, individual interpretation, and durability, and artisans must have direct access to their end users. The role of the intermediary in this ecosystem is as facilitator and educator. Intermediaries can educate and guide artisans, rather than intercept direct access to clients, and educate consumers to understand the value of craft in terms of issues of environmental, economic, social, and cultural sustainability. The intermediary can reimagine traditional systems of distribution and re-value the personal connection of craft to bring genuine sustainability to craft traditions and the planet.

Keywords: *Education as response to SDGs + Education of producers and consumers + Buy better, consume less*

Weaving a Slow Steady and Sustainable Future

Sumita Ghose
Founder, Rangsutra collective

The act of handloom weaving can sometimes seem mechanical, which it is not. A more apt word that comes to mind is meditative, where the mind, body and heart are synchronized in a natural rhythm.

I became aware and interested in handloom weaving back in the late 1980s while working with the URMUL Trust, in Loonkaransar, Bikaner. A severe drought in 1987 had resulted in the migration of cattle and in cattle deaths, due to lack of fodder. The farming communities we worked with were in urgent need of remunerative work and food. Upon discovering that many women had wooden charkhas/spinning wheels and knew how to spin, we bought raw wool from Bikaner, the largest wool mandi/wholesale market in Asia, and gave it to women to spin. One thing lead to another and before long we met with handloom weavers from Jodhpur and Jaisalmer, who wove the most beautiful Rajasthani Pattus – large shawls which double up as light blankets, and thus began an organic connection from wool spinning to weaving.

Pattus were presented to the in-laws, at the time of weddings. Pattu weaving using the extra weft technique, is both an art and a science. Graphs have to be drawn to plan for motif placement, and the warp has to be manually lifted to insert the extra weft. The extra weft traditional technique of embellishing textile weaving being done on pit-loom in the Jaisalmer and Jodhpur region of western Rajasthan. This involves physically lifting warp yarns with fingers to insert extra weft and create motifs.

The URMUL campuses became hubs of activity, - students and teachers from the National Institute of Design, Ahmedabad, craft enthusiasts and professionals from Dastkar Delhi, and very soon by the early 1990s we had two nascent organizations of handloom weavers – the URMUL Marusthali Bunker Vikas Samiti in Phalodi, Jodhpur, and Vasundhara Gramothan Samiti in Loonkaransar. Later on women who embroidered the most beautiful motifs and patterns joined in, embellishing the handwoven fabric with their colourful designs, to become a part of URMUL Seemant, in Bajju. A lot of diligent and concerted efforts were made by the weavers and the URMUL teams on the ground that included research on dyes and how to ensure colour fastness, improvement in looms and technology, learning new weaving techniques or adapting the older ones. The organizations flourished all through the 1990s and early 2000s with designers, management interns, and marketing organizations helping to take the products to all the major cities in the country, and URMUL products came to be known across the metro cities for their earthy vibrant hand crafted look.

All though the early 2000s, the weavers continued to make and sell in exhibitions, and a couple of them got a orders from fair trade organizations. Unfortunately they were unable to keep up with market requirements, nor were they able to hire designers to make new products. Exhibitions were the one outlet for sales, but not everything sold at exhibitions. Stock that would not move kept piling up, blocking working capital. On the supply side, young weavers moved to manual labour at construction sites – breaking stones, and working on the many government sponsored infrastructure programs in and around their villages and towns. Some of them later got access to tube wells, and started focusing on agriculture.

Transforming and investing in the sector to survive and thrive

We realized that we needed to transform ourselves if handlooms were to

survive and thrive in the 21st century. This led us to the idea of creating Rangsutra – an idea which came to me in 2002, while on a sabbatical from work. After several talks with the URMUL weavers and other community based organizations we decided to form a community owned social enterprise, where weavers and artisans could be shareholders. It would be a for profit enterprise, so that we were not dependent on external funding, and could retain our independence.

Rangsutra builds on the aspirations and skills of handloom weavers and other rural artisans, to create and sell hand crafted products to customers. Aiming to be a bridge between rural artisans and urban and global customers we strive to retain what's best of the traditional practices while catering to contemporary needs and making use of appropriate 21st century technology and tools. Handloom weavers from Rajasthan are our founder members/ shareholders and remain on the board of directors.

An empowerment approach, which is different from a benefactor – benefactory or owner/ manager to a worker approach has been vital in ensuring a strong base for Rangsutra's work. Investment in building leadership capacity for constructive collection action has been the cornerstone of our efforts.

One of the key transformations that we strive to bring about is a shift in mindset from weaver to weaver-entrepreneur, keeping the market in mind.

Caring for the Planet

Handloom weaving does not need electricity and has a low carbon footprint. Of course the raw material used by weavers, mostly cotton, does consume a lot of water. As we grew, we recognized that we need to take care to ensure that making more fabric and products does not come with a cost to the environment. This meant setting up an effluent treatment plant at our dyeing unit, and switching to the 'Better Cotton Initiative'(BCI), an initiative that took shape in India in 2011 that is aimed at sustainable cotton production. We adopted these environment protection practices as we grew our partnership with IKEA, the Swedish global chain store. This partnership has given a second lease of life to Rangsutra's weavers.

As cotton when grown conventionally requires large amounts of water and chemicals, making it harder for farmers to earn a living the BCI aims to make global cotton production better for the people who produce it, better for the environment it grows in, and better for the sector's future. BCI connects people and organizations from across the cotton sector, from field to store, to promote measurable and continuing improvements for the environment, farming communities and the economies of cotton production areas.

It has also motivated us to experiment with solar powered looms developed by the SELCO Foundation. These looms, increase productivity while weaving striped, or chambray fabric which does not require engineering the weft. Solar powered looms are a viable alternative to plain fabric, on which Rangsutra embellishes hand embroidery, which in turn provides work to hundreds of women.

Zero waste, upcycling is part of the culture of rural life till today and we are trying to stay true to this value of waste not, and utilizing every bit of raw material and left over fabric. Weaving our own fabric means that we can be precise about the breadth and length of the fabric, and avoid wastages at the sides or end bits, which is inevitable when we buy mill made fabric.

An area that we in Rangsutra and others in the textile industry need to put committed efforts into, is natural dyes. We know that chemical, synthetic dyes cause harm to the soil, the water and can also harm the people/ dyers who are using them to dye the yarn/ fabric. And also maybe to the person who wears/ uses these synthetic dyed fabrics. Natural dyes on the other hand, made from plants, fruits and vegetables have no such adverse effects. The natural dyeing process is slower and more complex, as compared to synthetic dyes, and may seem more expensive, but in the long run it is the synthetic dyes that are proving costly to the earth to its inhabitants and to the environment as a whole.

Keywords: *Sustainability, Technologies, Transformations, environment, Collective action*

The Handloom Sector

A Pathway for a Green Economy

Meera Goradia
Creative Dignity

The definition of a green economy was first propagated in 1989, by Anil Markandya, David Pearce and Ed Barbier in a publication called Blueprint for a Blue Economy. The United Nations Environment Programme describes a green economy as one that promotes a transition to economies that are low carbon, resource-efficient and socially inclusive. While a lot of focus has been on the carbon footprint of various production lifecycles, the social relevance of a green economy needs more emphasis. This piece delves into the many aspects of social wellbeing and equity that the handloom sector enables. And therefore, the immense potential it holds for contributing to a green economy. By official estimates, 99.1% of all artisans fall into socially and economically marginalised groups, minorities and women. Of these, 56.13% are women. From the official figure of 7 million artisans in India, a little over 4 million belong to the handloom sector.

First, women's contribution to handloom weaving as well as other artisan practices has been largely invisible. They perform the tasks of preparing the yarn, sizing, warping, and bobbin – the making of which are integral to the process of weaving. These functions determine the quality as well as the productivity of a weaver. And post-loom, women do the finishing, fringing or other embellishments. But we see the weaver at the loom who is usually a male and assume that it's a solo effort. Weavers mostly weave in family workshops where all members of the family often join. The major load of supporting the weaving practice, however, falls on women. Their labour is factored in the wages, albeit not on par with the men's. Often, the artisan wage becomes sustainable due to the in-built calculation of the woman's work. In the North East, women are more in control of the weaving process and as economically active members of society.

Likewise, socially and economically marginalised communities find employment through piece rate or as job workers through the self-organised system of handloom production. Apart from the preparation, several post-finishing tasks create employment where there is an ease of entry for vulnerable populations without assets. It is estimated that for every power loom that employs two workers, a handloom generates employment for ten. A cursory look at some of the major clusters like Varanasi, Chirala, Pochampally, Chanderi, Maheshwar, etc. reveals the potential of engaging vulnerable communities in regions where other employment opportunities are scarce. Moreover, migration to cities only adds to further alienation, loss of skills and demand on the urban infrastructure.

Given the scarce employment opportunities in rural areas, men migrate or shift to other jobs where the pay may be better or the work is less unstable. The women stay behind and manage the households, livestock or other assets. The income that women earn through their support functions becomes a buffer during times of difficulty. Given the patriarchal and feudal nature of our society, women find these jobs socially acceptable and therefore also find ease of entry.

Particularly for vulnerable households or women-led households, artisan practices become a respectable way out of extreme poverty and distress. The skills and knowledge already exist in rural communities. The challenge lies in finding how best they can be of benefit to rural women and marginalised communities.

Once people find these opportunities, they develop economic agency. This improves their social status, which leads to an increase in self-esteem and confidence. In clusters where men move out for work more

frequently, women have taken on weaving and other allied artisan practices as a respectable recourse for employment.

Women are also better attuned to working in groups. They are naturally collaborative given that they balance social relations for the family many a time. Within the constrictions of society, they find handwork to be a release and a medium of self-expression and bonding with other women. It, therefore, becomes easier to organise women's self-help groups as well as develop responsible supply chains with management by women.

For other vulnerable communities, artisan practices can bring about large-scale employment opportunities in rural areas and strengthen the social fabric through economic interdependence between communities.

The COVID-19 pandemic has changed consumer patterns. A study by Price Waterhouse in 2021 has projected the importance of brands that are environmentally and socially driven with strong ESG compliance. Core and young millennials are increasingly conscious of eco-consumerism. While on the other hand, a report by McKinsey has projected that India will need 90 million non-farm jobs in the rural economy by 2030.

If we connect all the dots, it means enabling the artisan sector, especially vulnerable communities and women, to become the face of India's green economy. Their skills, resource-efficient practices and huge potential for social inclusion certainly merit the effort.

Keywords: *Green Economy, Social relevance, women, employment, SHG*

Sustainability in Indian Textile Traditions

Toolika Gupta
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Indian textiles always evoke images of ancient trades, interesting prints, embroideries, and specific weaves. Although a lot of new inventions and innovations are on the rise, the general trend is to associate Indian textiles with the word "traditional" and Indian clothing is associated with the word "ethnic." We have a multitude of designers working in India, and for many of them, their core strength lies in the use of traditional, hand-crafted Indian textiles, either as inspiration or as their raw material. This is the tangible material culture that we see today, but there are some intangible values associated with Indian textiles, which have continued for centuries but have somehow gotten lost in the madness of the modern world. The time has come to re-look at our traditional textiles with a fresh perspective, that of SDG 2030.

A holistic understanding of Indian traditions and traditional textiles requires the onlooker to move beyond the mere physical attributes of the same. A kantha textile, for example, is always looked upon as a beautiful, organically designed piece by women. The commercialization of the same has focused only on the stitch types, techniques, and motifs, and to a certain extent, the colors. What has been missed is the sustainability factor. Kantha was basically an upcycled piece of textile, consisting of layers of old, worn-out sarees, and dhotis, layered one on top of another and quilted together to give strength to the final new, upcycled fabric. The use of white thread on white was to quilt the layers, and the use of colored threads was done to create a story, some characters, flowers, birds, or anything else that the embroiderers saw around them, which they observed and wanted to represent in their own way. A new fabric thus created could have multiple uses. Like kantha, we see sujani in many states of the north and east, in Rajasthan the ralli quilts and bedspreads are made in this way. Maharashtra has godris, and most of the other states too have the upcycling, recycling, reusing of fabrics planned well.

Indian clothes are looked upon as classical, or "ethnic" if looked at from the colonial lens. Once we remove that lens, we clearly see sustainability prevailing in our made-to-order clothing like kurtas, pyjamas, jamas, angrakhas, lehnga, cholis and their multiple versions. Each of these has zero-waste patterns, something that the West is obsessing about these days. We emphasize bespoke tailoring as an elite concept, but that was the only concept in India always until we had mass-produced clothing, sold in standard sizes. We have had this for centuries, if not millennia. Something that has definitely been existing for millennia is the splendid drapery in the form of our upper and lower drapes of the body. These have been known by a variety of names like antariya (lower garments like dhoti, veshti), uttariya (upper drapes like duppata, shawls, angavastra), ushnisha (head gears or turbans like safa pheta), patka (waist belts or extra fabric hanging from the waist), and of course the ubiquitous saree. All these drapes are carefully done with rectangular fabrics, straight from the loom, with zero wastage.

Once they serve their function as clothing, they are either reused by someone else, recycled to make dusters, or upcycled to make the multiple types of quilts as mentioned earlier. Another point of discussion is the lack of sustainability as a separate practice; sustainability has been inbuilt in the way work is carried out. The entire family is involved. It supports each one economically; children work as apprentices and learn the skills while growing up in that environment. It takes care of their mental health by allowing them to express their creativity. Isn't that what the corporates are trying to do today? A break for their employees from the monotony of their jobs? Our traditional handicrafts have catered to this need of the creative mind for centuries. Economically viable,

socially accepted, environmentally friendly, keeping us physically fit and mentally fit and occupied—this sustainability is a part of our intangible cultural heritage. Is the knowledge of weaving taught to weavers in schools, or is it something they just pick up naturally while apprenticing with their parents? The knowledge is inherent, tacit, something that has not been really documented, but it exists. You can say that it has been going on for generations and thus it is sort of a part of DNA.

Indians know how to live sustainably. Sustainability has never been taught as a separate chapter or separate subject in the Indian lifestyle. It is a part of our growing up. We like to fix things; we do not waste. We do not throw away things. These practices were common until it became fashionable and cool in the West to not be "sustainable" and to throw away things rather than to repair them or reuse them. This was fanned by capitalism and took over the educated elite in the metro cities. The trickle-down effect from metro cities to tier-two and tier-three cities was bound to happen. The way everyone tried to learn from America the culture of use and throw, now in the same way now everybody is trying to learn sustainability.

It is high time that the potential of our traditional practices is realized. I strongly recommend that rather than calling it traditional or cultural, we must call sustainability one of our "best practices." To achieve the best for the future, we really need to dig into our past and use our best practices, rather than overlooking them.

Keywords: *Sustainability, Material, Culture*

Handlooms in Relation to Sustainability and Livelihood

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National Federation of Handlooms and Handicrafts (NFHH)

The handloom industry is a major source of employment after agriculture in rural India, very much dependent on agriculture itself for raw materials such as cotton, jute, and silk. Handlooms embody and signify regional identity, acting as symbolisms and records of local folklore, traditions, and cultural practices. In its long history, the handloom industry, thanks to its deep-rootedness, has survived the onslaught of wars, famines, invasions of all kinds, and the resulting lifestyle changes. What has proved critical to its survival is the social support it has received in the form of cultural tastes and preferences for handwoven fabrics that reflect the work of highly skilled weavers and represent distinct identities. Handlooms have also been integral to communal harmony, given the sheer diversity of castes, religions, and tribes that often partake in the making of a region's signature weave.

The process of handloom weaving birthed a legacy of traditional science and knowledge that have mostly withstood the impact of foreign powers and modern machines. Each region in India has a unique handloom style in terms of design and dyeing, reflecting different influences and customs, with the overall process tilting towards being ecologically balanced. The designs largely take inspiration from local flora and fauna, as well as cultural and spiritual systems, resulting in substantial cooperation between various communities. Handlooms, therefore, have been vital to social and religious harmony — especially between Hindus and Muslims — in villages. It would not be an exaggeration to say that this was why Mahatma Gandhi adopted the charkha (spinning wheel) as a symbol of the freedom struggle under the British Empire.

The process of the handloom weaving and dyeing in its long and centuries of history has evolved a legacy of traditional science and knowledge which has stood the handloom as a strong productive system in Indian society and made it withstand the onslaught of the sophisticated foreign dumped power-operated machine products. The unique pattern of designs and dyeing process in different regions is the specialty of the handlooms - handloom designs in each region being different from the other. This is demonstrative of the fact the strength of respective regional and religious customs and traditions in relation to eco balances. Most of the designs are created reflecting regional biodiversity of birds and animals and cultural and spiritual systems. Because of this, people from all religions are involved in the handloom occupation in different parts, especially in rural society in India. This is the basis of the social harmony and balanced relationship between Hindu-Muslim religious and their ability to resolve disputes in the villages and thereby avoid conflicts. It is no exaggeration to state that this was the basis of Mahatma Gandhi's adoption of charkha as the symbol of the freedom struggle. Making of charkhas involved all the religious people.

Under colonial rule, the Indian handloom sector withstood several unfair restrictions such as duties on yarn and finished fabric that were seen as tough competition to cloth made in Britain's modernized mills. Local weavers also faced stringent penalties for breaking rules like making fine-count yarn fabric on their looms. In July 1923, handloom weavers in Malegaon underwent a trial, with 10 of them getting long jail times and four were hung to death in Pune.

After independence, the Indian government prioritized handlooms and other cottage industries in its first five-year plan, establishing cooperative spinning mills to supply raw materials to weavers at reasonable prices. The handloom sector was recognized as a great employment generator and a legacy of heritage, culture, and tradition. After 1952, it received

greater protection in the form of laws and reservations.

Since it is a largely home-based industry that involves almost all members of a family in different aspects of production, skills are passed down from one generation of master weavers to the next. The workforce is organized in different ways: independent weavers, cooperatives, or a master-weaver system utilizing wage workers. Given that handloom weaving banks on the skill set of the craftsmen, weavers often keep shifting from one production base to another, resulting in large migrations from time to time. Needless to say, they mostly belong to poor and vulnerable households.

Handlooms- Sustainability and Livelihoods

The issues of environment, sustainability, and eco-sensitive livelihoods are the central concerns of the present thinking on development as appropriately brought out by the Advisory Panel on World Commission on Environment and Development made Sustainable Livelihoods in its report. In this context, it is instructive to recall the definition offered in the IDS Sustainable Livelihoods approach.

"A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base."

Thus, a livelihood becomes environmentally sustainable when it maintains or enhances local and global assets, and socially sustainable when it can cope with shocks and stresses and sustain future generations. The question of sustainable livelihoods involves a combination of issues pertaining to livelihood resources (human capital, financial capital, social capital, and natural capital), livelihood strategies (in terms of agricultural intensification/extensification, livelihood diversification, and migration), and the place and role of institutional processes. Following the above position and definition, the handloom sector is a major source of sustainable livelihoods that are ecologically responsive and sustainable. Handlooms are known for providing employment in rural areas and are next only to the agricultural sector in this respect. The handloom sector provides livelihoods to more than 31.45 lakh households engaged in weaving and related activities. According to the Fourth All India Handloom Census, an average number of 208 workdays were availed by the handloom workers during 2019-20, an increase from 183 workdays in 2009-10 as per the Third Handloom Census. Most weavers belong to Other Backward Castes and SC/ST and Minority Communities.

Following the above position and definition, the handloom sector is a major source of sustainable livelihoods that are ecologically responsive and sustainable. Handlooms are known for providing employment in rural areas and are next only to the agricultural sector in this respect. The handloom sector provides livelihoods to more than 31.45 lakh households engaged in weaving and related activities.

Eco Balance of Handlooms

Many countries have given the call "Go Back To Nature" in the light of increasing awareness of environmental pollution and associated health hazards, leading to increased awareness for eco-friendly materials and the importance and necessity of natural dyes in clothing. This requires not so much innovation but the revival of already available skills and tech-

nology and its availability and access.

The natural dyes are obtained mainly from three sources: vegetable sources, animal sources, and mineral sources. Natural colors can be obtained from parts of the plants and different colors from different parts. More than 500 varieties of plants and trees are available that can yield natural colors.

Handlooms still occupy a vital place in textile manufacturing owing to their role in the production of special high-quality silk, cotton, and even jute products. It is well known that most vegetable colorants are classified as mordant dyes that have no affinity for cotton cellulose and poor affinity for protein fibers. Some optimization of application on yarn and quality control is essential.

Without letting our guard down on pollution control, we should encourage the use of globally accepted natural dyes, and ensure the avoidance of anything that causes health hazards, unwanted chemical reactions, or disposal problems. Preference should be given to locally available resources that are renewable and cause no environmental harm.

Keywords: *Employment, Traditional knowledge, Competition, Sustainability, Social impacts*

Handloom and Sustainable Traditions of India

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"*H*andlooms are Diwan-e-Khas, and power looms are Diwan-e-Aam"

As our Prime Minister Narendra Modi put it, handlooms are akin to Diwan-e-Khas or the hall of private audiences and power looms are like Diwan-e-Aam or the hall of common masses.

Handlooms are not just fabrics, they are exclusively customised artworks executed by the most talented artisans and weavers. The history of handloom goes back to ancient times, with references to handwoven fabrics appearing in the Vedas, and fragments of finely woven and madder-dyed cotton found at the Indus Valley excavation site of Mohenjo-Daro. Sant Kabir, a weaver himself, immortalised handloom in his Dohas and songs.

"The wondrous weaver wove the cloth with the thread of Karma as a warp; Memory and attachment as weft."

These verses by Kabir show the holistic process of handloom weaving. Traditionally, handloom weaving is a community-based cottage industry involving the entire family that passes its knowledge to the next generation.

Hand-woven fabrics are a reflection of the cultural identities of various tribes and communities. Folk stories are often woven into these fabrics and symbolised through motifs like fish, lotus, peacock, parrots, and mango.

Mahatma Gandhi introduced hand-woven Khadi fabrics as a weapon for India's independence in the form of the Swadeshi movement, pitting regional handloom against power loom, and showcasing communal harmony through it.

What is Handloom?

The interlacing of two sets of yarns lengthwise and widthwise, or warp and weft, at right angles is called weaving, and the equipment that facilitates this process is a loom, which when used without electricity is called a handloom.

Handloom weaving is done on pit looms or frame looms generally kept in the weaver's home. The former is kept on the floor with a pit in the ground, with two pedals for the weaver to operate. This is considered better for weaving as the fabric retains the character of the fibre, while the ground acts as a sort of shock absorber.

Importance of Handloom

Handloom fabrics are soft, comfortable, breathable, cool, durable, absorbent, and environmentally friendly. These qualities of handloom are due to the human handling of yarns in the weaving process. As a result, the yarn and the fabrics are less stressed and damaged, making the fabric comfortable to wear, keeping one cooler in summer and warmer in winter.

- Natural fibres used in handloom make the fabric more comfortable.
- These fabrics are eco-friendly and easily biodegradable, thereby putting less pressure on the environment.
- Uses minimal resources like electricity.
- Handloom weaving is a community-based activity, providing

employment to women and the opportunity to pass on the traditional skills to the next generation.

- By using handloom fabrics for contemporary wear, you preserve a traditional craft and support the artisanal community. It also showcases the distinct identity of the community involved in its creation.
- As Indians, we can proudly display different weaves in modern garments on a global platform, giving a boost to our "Make in India" campaign.

Why is Handloom Sustainable?

Sustainable actions do not harm future generations. The processes involved in sustainable production are in harmony with nature, using minimal or recyclable resources. Hand-woven fabrics are an example of sustainability because:

- Every piece produced is customised, discouraging mass production.
- The slow process of weaving means unique designs and higher quality.
- Production is localised, reducing the need for transport.
- Recycled textile waste can be used, reducing the need for virgin material.
- Frames for looms are made of wood or bamboo, making the material natural.
- Natural and eco-friendly dyes are used, reducing chemical use.
- Handlooms have a low carbon footprint, needing no electricity.
- Khadi weaving uses only a spinning wheel, making it highly sustainable.

Handloom is an integral part of India's diverse cultural fabric with sustainability as its backbone. Handloom weaving is one of the largest employment-generating sectors after agriculture based in rural areas of India. Achieving sustainability in rural areas will lead to contribution to circular economy at national and global levels.

Keywords: *Environment, social, economic, sustainability , interventions needed*

Environment and Social Sustainability Issues in Indian Handlooms

Pavithra Muddaya
Designer, Vimor

The Indian handloom weaving sector has successfully supported weavers, auxiliary artisans from other cottage industries, and farming communities as well. It has encompassed some of the widest sustainable practices long before the word "sustainability" was coined and turned into a popular marketing term.

It has been a living cultural legacy that honored humans and Mother Earth, inculcating a system of recycling, reusing, upcycling, and respecting resources. In the past, throwing away was not an option, at least until the last generation, who are now in their 80s. Women who ran their families were well adept in sewing, embroidery, and repairing; necessity is the mother of invention, after all.

Looms were made of hardwood like jackfruit, and normally old rafters from the roofing that were damaged were used to build the loom. The reeds were made from jowar (sorghum millet) stems or bamboo. The shuttles were made from leftover wood or buffalo horns after the buffalo died. Even zari is wrapped around the old torn fabric to store and avoid breakages. Many different domain specialists contributed to the making of a handloom fabric. Old cloth and saris were upcycled and used to make small hammock-like cribs still common in rural India. These never result in any crib deaths. Apart from that, they also made nappies, patchwork quilts, sheets for babies, and clothes for children. Threads were pulled apart and used for embroidery. Wicks were also made from torn saris to light up the temple torches and lamps.

There was minimal use of chemicals and even now, the exception is for dyeing yarns as it was economically viable. The systems of traditional knowledge being passed down are disappearing, taking with them the cultural legacy of thousands of years. Handloom production was inclusive and supported a harmonious cultural society that was interdependent. Handloom production in India is unhurried by nature and fulfills what slow-fashion proponents across the world have been advocating for a long time, concerning sustainability. It was not stuffy factories they worked in, but in the comfort of their homes, avoiding distressed migrations to overcrowded cities, and reducing the carbon footprint.

Environmental and Social Sustainability

I believe that we need to look at our roots, analyze, question, and study. Our grandparents' healthy longevity is related to food and the environment. At the heart of this are the farmer and weaver—one to feed and the other to clothe without harming Mother Earth or humans.

Sustainability was not a word but a cultural living practice in the weaving communities. Why can't the world learn from our time-tested indigenous practices? Make economic sustainability the first priority. Humans should be the main focus, especially the unlettered, and poor. No man on a hungry stomach can think of climate change.

Handlooms are a teachable skill, where many senior weavers can be employed as expert teachers, and we have lakhs of them in India. This will create income-generating skills for the unemployed to live with dignity. What follows is social sustainability as they engage in a community-driven activity of weaving and embroidery. Handlooms using natural fibers show us the way forward—dignity of labor with no harmful emissions and no carbon footprint, no distressed migration, and minimal social evils. Fabric made by soulless machines using polyester is what goes into landfills, robbing us of our future.

Handlooms are among the quickest and most eco-friendly ways to address sustainability and provide livelihoods. At a time, when most of the world is struggling to address the UN's Sustainable Development Goals (SDGs), India already has the answer in handlooms to meet 11 of them with the least negative impact on humans or the earth. We should not forget that Indian handloom textiles were once the most coveted item across the world, contributing to the region having the highest GDP in ancient and medieval times. Several empires and nations have been in awe of our artisanal skills, even at a time when there was no modern technology.

What can we do to ensure that our handloom legacy grows through collaboration?

- If policy decisions are more empathetic to weavers' problems and are not only for looking great on paper but are implemented in the true spirit of safeguarding our national treasures, I have no doubt that we can reclaim our position of premier handloom producers in the world.
- Simplify paperwork and verification of weaver documentation. Each time a weaver travels to claim his governmental benefits, he loses a day's wages plus commission.
- Stop the discount system on handlooms. Customers use this as a habit to bargain with our unlettered weaver but will never bargain at a branded store. This leads to keeping weavers in poverty, suicidal, and living with no dignity.
- Impose a Minimum Wages Act to the handloom sector like MNREGA. Most weavers migrate to these unskilled jobs only for assured remuneration.
- Create an authentic database of handloom weavers so we can measure growth, both financially and socially.
- Once these are in place, weavers can rise to play an important role in nation-building. I would like to end with an important thought: Why has a weaver or his group been unable to compete with corporate entities in the handloom space, which generates a lot of money? Where have we, as a society, failed the people that clothed the nation?

Keywords: *Handloom conservation, interpretation of tradition*

Creating Economic and Sustainable Handloom Value Chains with Indigenous Fibres

Juhi Pandey
Independent Craft & Social Design Professional

If the Industrial Revolution is 200 years old, but woven cloth existed at the time, it clearly denotes that it was handwoven and the yarn used for the same would have been handspun. Prior to the Industrial Revolution, even the transportation systems across the globe were sparse and so most communities and societies managed to procure materials for their basic needs of food, clothing, and shelter from their immediate environments.

The Silk Route, between Asia and the Mediterranean region, dating back from the 2nd century BC until the 14th century AD, connected China, India, Persia, Arabia, Greece and Italy and offered a great opportunity for the exchange of local materials with the outside world. The route was mainly established due to the presence of silk in China, which kept it a secret as it was the most sought-after commodity across the known world for its luxury quotient.

In India, the Ladakhi who inhabit the extreme northern Himalayan region, speak of their ancestors who clothed themselves with animal skin, straw, and bark of trees before the woven cloth was introduced to them. Today, many of their accessories, especially the Ti-bihat, are still made of goat skin. The Ladakhis were mainly nomadic pastoralists rearing livestock that consisted of yak, mountain sheep, and the pashmina goat, living in sub-zero temperatures around the Himalayan belt.

The Nyshi tribe of Arunachal Pradesh, the easternmost state of India, were a tribal community that inhabited the forests of the East Kemang region and lived on the produce of the forest. Their ancestors wore clothing crudely made of grass, which they called Sabi. Once the tribe moved out of the forest and met other groups, the women learnt the skill of handloom weaving using the back-strap loom, which can be categorised as a nomadic loom. Their clothing called Perage, is made of handwoven eri silk obtained from a wild silkworm, reared by the tribal communities of the North East as a high-protein food as well as for its cocoon that is used to make textiles.

The Rabaris, nomadic pastoralists of Kutch and Gujarat, were mainly sheepherders and their clothing was made using handspun or handwoven sheep wool, in either ecru, black or brown, depending on the geographic region where they originated from and the breed of sheep reared by them, with the wool keeping them cool in summers and warm in winters.

These are just some of the many examples of how a community's clothing needs were addressed through the intelligence and knowledge its members had of their environment and natural resources.

One of the most abundantly used fibres in India is cotton, the oldest fibre known to humankind. India used to be one of the largest exporters of handwoven cloth before the East India Company and the British Empire began changing our ways and means of life.

Till the mid-20th century, 98% of India's cotton was indigenous. But this changed with the Industrial Revolution that brought power looms and later hybrid cotton suited for mass production in mills. Thus began the disruption of the entire value chain and the decline of handloom weaving traditions in many parts of the country.

The Khadi Village Industries Commission, established by the first government of free India in 1957 with the vision of Mahatma Gandhi — who began the Khadi movement in 1920 as a part of the Swadeshi Movement — emphasized the development of a village around its craft practices which encompassed the entire value chain, a terminology today popularly known as farm-to-market production.

Today, the regions where a robust practice of handloom weaving still exists have been a result of the practice being very much built into the culture and customs of the community, as well as the region being safe from mass industrial development.

KHAMIR (Kutch Heritage Arts Music Information Resources), a non-profit based in Kutch, Gujarat, is one of the key leading organisations in India that have proved to the larger community-based handloom initiatives that a robust local value chain based on the indigenous fibre of the region can be established.

In 2007, the sustainable market creation, as well as the concept of the development of a local loop of products, were the two initial drivers. Kala cotton, the local indigenous cotton of Kutch was ready as a concept due to the work done on farmers' issues by organisations established to develop local indigenous farming practices in the region.

The percentage increase in income and livelihoods of weavers is quite visible. The income has more than doubled. The farmers' income has increased by 30-40 % to conservative estimates. The Kala cotton publicity has attracted new buyers to the farmers' producer company, so some weaver entrepreneurs are directly purchasing their own Kala cotton in the last few years. The entire revival of hand spinning and Ambar charkha spinning also can be ascribed to the Kala cotton initiative, as well as the revival of natural yarn dyeing in Kutch.

Looms of Ladakh established itself as a social enterprise in 2017 as an effort to collectivise the artisans of Ladakh working in its remote regions, especially the communities involved in pastoralism. Today, Looms of Ladakh has created a robust value chain for the pastoral, hand spinning and handweaving community, by continuously engaging with 60 pastoralists, 151 hand-spinners and 42 weavers. This number is growing every year as the local leadership of the artisans is encouraging more artisans to join the practice with the main factor being the uniqueness of the products since the raw material is local, indigenous and can only be found in the region of Ladakh.

7Weaves is a social enterprise based out of Assam, in the eastern region of India, by two young pharmacists, who gave up their lucrative pharma jobs to work and build a conscious global story for their indigenous fibre – Eri Silk. It produces hand-spun, handwoven Eri silk fabric in partnership with indigenous forest communities in Assam's Loharghat Forest

Range, part of the Indo-Burmese ecological region. It began as a social experiment to create economic opportunities based on the traditional cultural knowledge of forest-dependent families in Assam. It has taken them 6 years of living, learning and adapting to the local social and economic structure of the forest communities to now have a sustainable value chain. Every piece of cloth produced helps restore the rich biodiversity of the area. Apart from producing eri silk handspun and handwoven products, the organisation has been researching and identifying more plants for their economic value and sustainable use, conservation which becomes integrated as an important part of the local people's livelihoods. Through this model, they have proven that production can benefit not just those making it, but the environment they live in and in turn the health of the planet. The enterprise started as a sourcing agency for Eri silk to some European buyers, but they work with 85 hand-spinners, 30 handloom weavers, silk rearers and forest community workers.

KHAMIR, Looms of Ladakh and 7Weaves, spread across the length and breadth of India, are proof of sustainable craft development only because the foundation of their entire practice lies in the raw material. The raw material is region specific, unique, and exclusive to the hand spinning and handweaving industry, and its value chain is in the hands of the local community.

In Kutch, as the popularity of Kala cotton grew, there was not only a significant increase in handloom weavers but also in Kala cotton farmers. Looms of Ladakh, with its buy-back policy with the community organisation, has encouraged local artisans and the herders to concentrate on better care of their livestock for better fibre yield, leading to an increase in daily demand. 7Weaves has proven that an enterprise can be truly sustainable if it starts sourcing materials and making products from the very land it is rooted in, and if the local community takes full ownership of the value chain and continues the practice as a legacy.

Keywords: *Value chain – Indigenous Fibres. Khadi + examples from across India + climate change, employment dignified, development model*

Sustainability and Material Exploration

Sunil Sethi
Chairman of Fashion Design Council of India

Environmental sustainability is the appropriate barometer for growth and most importantly it provides functional solutions for the burgeoning handloom sector. The handloom worker households in India stand at 31.44 lakhs, with the average number of weavers per household amounting to 1.05. Handlooms also largely contribute to exports and handwoven fabrics are exported all over the world from India.

The 2019 United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) report, states, India needs to spend 10% of its GDP to achieve Sustainable Development Goals (SDG) by 2030. Interestingly, the 2019-20, handloom export of India was US $315.62 million (Rs. 2,248.33 crore). There are many ecological benefits of executing textile waste recycling, fewer power and water consumption, or green energy plus the new move of shifting to eco-friendly dyes.

The need of the hour is recycling textile waste and crafting premium textile products without harming the environment. Increasing environment consciousness, the setting up of green legislations, handlooms are once again on the favourite list. For a country that has a succinct textile legacy ----innovative designs, new-age materials and sustainable processes are essential to preserve our rich cultural ethos. Eco-friendly, value-for-money quality products, in turn also improve the livelihood of weavers associated with handloom weaving.

But the advent of cheap power loom manufactured fabrics, alternate employment and economic liberalization have along with lack of design interventions and experimentation caused a dip in the sales. Sustainability has become a priority within textiles and a multifaceted approach is required for better craft processes, like handweaving, which is a sustainable option to mass production, as it boosts slow consumption.

Weaving has been linked with the cultural identity of the country, as it is one of the largest economic activities after agriculture, providing employment and uplifting the economy. Environmentally-friendly antimicrobial agents from natural products are one of the most effective ways of ensuring a sustainable future. Natural dyes, neem, natural colours extracted from marigold and amla have shown their efficacy in curbing pollutants from entering our rivers. Let's take the example of Ajrakh-we have been known for our block printed fabrics with symmetrical patterns, that existed in the Indus Valley 2400 BC-1400 BC. Ajrakh or “keep it today” is an Arabic word for indigo, which is the way that our past builds a bridge for the future. This illustrates how by contemporising traditional techniques, we can carve a future that is globally beneficial for our planet.

Sustainability and material exploration go hand-in-hand that's why many are now looking at alternative materials. Disposed PET bottles, turned into flakes and then fibre, reduce landfills and it has become a favourite for not just designers, but also manufacturers of home furnishing. Organic cotton is cultivated without fertilisers or pesticides, enables the soil to remain fertile for long and is in tune with international standards---fairtrade cotton as well as being skin-friendly.

Another fibre made using the wood pulp of trees cultivated and replaced is Tencel, an eco-friendly alternative for cotton or silk. Bamboo fabric is produced without chemical treatments, biodegradable and recyclable in turn decreasing pollution. Dyeing procedures are also being looked at as in India, there are more than 450 plants that can give dyes and possess medicinal value going back to our roots, literally and metaphorically.

Khadi has become a big player in the battle for sustainability within the design space. The spinning of khadi uses no machines or energy and thus has very little carbon footprint. A metre of khadi fabric can be made consuming three litres of water, while one metre of mill produced fabric takes up almost 55 litres. As Khadi is made from cotton, silk and wool and spun or woven by hand, using no electricity it doesn't utilize fossil fuel. Plus, khadi is made from rain fed cotton making it the blueprint for a sustainable eco-system in rural India.

Khadi being chemical-free, carbon neutral and natural in ingredients and production, the chemical exposure to the environment is non-existent. Khadi sales soared by 43 per cent taking the tally to Rs 5,052 crore, according to KVIC and the production rose by 16.7 per cent to over Rs 84,000 crore. If we go down memory lane, khadi was a symbol of freedom and today we are back to adopting eco-friendly raw materials.

Internationally, the fabric was the subject of Issey Miyake's showcasing at the 21_21 Design Sight in Tokyo a few years back. Another initiative is supporting handloom weavers in product and design development by providing training at the cluster level and many such inventive plans have been included by the Ministry of Textiles. The domestic market for textiles in India was valued at $100 billion in 2019-20 with rising exports valued at $50 Bn. The global textile market will expand at a compound annual growth rate (CAGR) of 4.4 percent from 2021 to 2028, by which time it would be worth $1,412.5 billion, according to a March 2021 report by Grand View Research Inc. The Government of India's Mega Investment Textiles Parks (MITRA) will build a coveted infrastructure with plug-and-play facilities to enable exports. The Production Linked Incentive (PLI) scheme boosts production and exports, the bonus is that India has approved 100% FDI in textiles paving the way for investment in this sector smoother.

Interestingly, the Ministry also launched Project SU.RE —— Sustainable Resolution in 2019 to add sustainability in the fashion industry. The handloom sector creates around 35 lakh direct employment, and schemes like melas and urban haats encourage sales, especially in areas such as the 'India Handloom Brand' promoted by the National Handloom Development Programme (NHDP), launched on August 7, 2015. For e-marketing 23 e-commerce sites have been set up with sales of Rs. 1046.52 crore reported. To support the handloom and handicraft sectors Government e-Market place (GeM) helps them sell their products directly to Government Departments and organisations, 1.5 lakh weavers have joined the GeM portal.

Various schemes 'Skill India', 'Digital India', 'Brand India' 'Swadeshi Products' 'Aatamnirbhar Bharat' or 'Vocal for Local' have garnered interest amongst an insta-savvy audience. Another support system created is Geographical Indications (GI) that can help recognize, and promote these products to bring socio-economic benefits. GI in the handloom sector not only protects identity but also curbs duplication. GIs are being looked upon as an instrument for protecting the traditional knowledge of craftsmen as the process of production of handicrafts holds a cultural value and it must be protected through a distinctive mark. The beauty is that every state in the country has a weaving tradition. It just needs to be brought out and showcased and the young generation will wear handlooms, if we provide ingenious silhouettes and no-fuss maintenance.

Keywords: *Sustainability, Material, Fashion, Employment*

Handmade Textiles and Sustainable Practices

Archana Shah
Founder, Bandhej

Heritage textiles in India continue to be a living tradition. They narrate the story of our indigenous design aesthetic and culture. Each region offers its distinctive textiles - skills, techniques, production processes, colour palettes, motifs, and a vast array of natural fibres and dyes.

The handmade sector forms an important part of the Indian economy. It is the country's second-largest employment provider after agriculture. A recent sample study indicates that around 200 million artisans depend on the craft sector for their livelihood. It is estimated that around 30 million are involved in the handmade textiles sector. The numbers clearly suggest that the segment needs to be taken seriously.

There is an abundance of diverse skills which could be repurposed to create textiles for multiple markets. Apart from the fact that it encourages artistry and sustains our rich heritage, the products are unique and have a human touch and a story to narrate. More importantly, the sector addresses the two major challenges we face today: climate change and unemployment. It is a slow means of production that is eco-friendly and has the potential to create a vast number of dignified livelihoods without a huge investment.

Developing the craft sector would help empower millions of women and marginalized communities and give them a sense of self-worth and dignity by making productive use of their time and profuse skills. It can provide a sustainable income to families within their own regional location, protecting them from the misery of economic migration to urban centres, where jobs are now hard to find and living conditions are brutal.

Handcrafted production has a light carbon footprint, and the production processes are inherently sustainable and fulfil most of the United Nation's Sustainable Development Goals, giving enough reasons to develop this sector.

Most places in the world have lost their traditional hand skills. We are fortunate that a vast variety of our crafts have survived. In remote pockets of the country, there are artisans who can recreate exquisite heritage textiles that we admire in museums. The community has varying skills and with appropriate collaborations, it is possible to create unique textiles using these diverse skills for different market segments. Many young designers today collaborate with artisans to create contemporary textiles for urban markets, supporting a small percentage of the artisans but have helped to generate new interest and create an aspirational value for artisanal fabrics.

The problem is not handmade versus machine-made but striking a balance. There is a need for both. Machines or technology are not bad; they are neutral. How they are used will define our future. We can incorporate new knowledge and ideas, and appropriate technology to improve systems and production processes when required to make handcrafted production more efficient, green and less wasteful.

The key to developing the handcrafted sector is marketing. There is a need to produce good quality textiles with a unique identity, suitable for the fashion-conscious markets. Appropriate products need to be developed, without compromising on quality, for different market segments from luxury to affordable fabrics for the price-conscious middle class. Local communities could also be encouraged to use what is produced within their vicinity.

A dynamic vision with political will, supported by domain expertise, with a dedicated team of designers and technocrats can revitalise the artisanal segment. This needs to be supported by awareness campaigns to create value for these products, strengthened by suitable branding, celebrity endorsement, and massive digital and social media promotions to make handcrafted products fashionable.

With appropriate marketing and new narratives about the benefits of handcrafted products, consumers would develop an appreciation. The market share would expand, creating regular work, and encouraging the next generation of artisans to continue practising their craft.

The choices we make today will define our future. The western models based on profit and consumption are no longer sustainable. Overconsumption comes with a hidden price tag. It is the environment and workers in the supply chain that pay the price. We need to look at alternative models of development that are better suited for an Indian reality, where the environment and people matter.

Degradation of the environment, issues related to landfills, lack of jobs, and the influence of movements such as Fashion Revolution and Slow Fashion that promote quality, responsible consumption, and support ethical and eco-friendly production practices are helping to change perceptions.

With the greatest diversity of craft skills in the world, Indian artisans can make a significant contribution by making products that are sustainable and eco-friendly. The challenge is how to bridge the gap and connect the producers with multiple markets. We have a huge opportunity for creating textiles that are ethical, sustainable, and eco-friendly, 'Handmade in India' for the local, national, and global markets and, in the process, making the world a better place for future generations.

Keywords: *Climate change, employment dignified work +development mode*

Preserving Textile Craft Cultures - *Majnu Khes*

Arjunvir Singh & Rashi Sharma
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Textile craft traditions in India have always been a combination of allure and utility. Framed by cultural and geo-climatic contexts, these textiles are the outcome of human labor and skill. Khes weaving can be considered a craft tradition for the very same reasons. Especially the double weave structured Majnu Khes, which used to be a highly prized item amongst Punjabi households. Along with its decorative appeal, it also fulfilled a variety of functions. Khes is a classic example of people's tradition of harnessing and using local material ingeniously, to transform it into something that helps them resolve their needs amicably.

The Versatile Khes

Khes is a thick piece of cotton textile (in some rare cases, silk was also used) woven in Punjab, both western and eastern, and some parts of Sindh as well. At one time, Khes had multiple uses around the home, despite originally being meant to be used as a bedcover. When there were no mattresses available, a Khes was spread over a talai (a thin form of bedding) instead. It was also used as a shawl, a blanket, and even as back support when sitting on the floor. It was mostly woven by the village weavers (the Julahas) and was later bought by the locals. At the same time, it was also practiced as a home-based craft and a version of it was woven by the womenfolk. Khes was also an integral part of a bride's trousseau and was sometimes even woven by her mother and/or grandmother.

Varieties of Khes

Khes can be classified into three categories based on the weave structures involved in its making – Saada Khes, which uses basic twill weave and is the simplest of all three; Gumti Khes, which is patterned by float-based derivatives of plain weave; and Majnu Khes, a double-cloth based structure, the most intricate of all and the specific type that we would be highlighting in this written piece.

Majnu Khes: A Craft in Decline

We have been documenting Majnu Khes – both its visual language and how it was affected due to the partition of India and Pakistan – for the last four years. As it happens, the only Majnu pieces that are left in India today are the ones that people brought with them when they migrated from West Punjab to East Punjab back in 1947. The reason is that this particular type of Khes was only woven in the western parts of Punjab (present-day Pakistan) and Sindh. Before Partition, there was an exchange of these Khes pieces across the different regions of Punjab and Sindh. But today, most of the current generation doesn't even know that a different type of Khes weaving tradition exists on the other side of the border. Another factor to consider is that most of the weavers who used to make them were Muslims and belonged to West Punjab. Even if they did

not, they migrated during Partition.

Rediscovering Majnu Khes

The thing that bothered us the most when we first started researching Khes in 2018, was how nobody, including us, knew about Majnu Khes. As design students, we are always taught about contemporary developments in woven textiles at Bauhaus – especially Anni Albers' work. So when we discovered this Majnu Khes we were surprised at how graphic its visual language was and how beautifully double-weave was used in structuring the textile. At the same time, we were disappointed in never having seen or heard about this textile before. We always tend to look towards the West when it comes to 'modern design vocabulary,' when the craft practitioners of our country developed such visual languages ages ago, it's just that we lack proper documentation which ultimately leads to their extinction. In addition to that, the market for Khes is dying with every passing day.

Challenges and Hopes for Revival

While we were on the field in October 2018, we came across Inder Jain, a weaver at National Khadi, Haryana, who came to Panipat in 1972 from a nearby village. While talking to him, he said, “Jab desh aazad hua tha tab Panipat mein Khes ka hi kaam tha, par phir tarakki hui...” (When the country gained Independence, Khes was the only textile being woven in Panipat, but then we prospered...). What he meant was that earlier there was a market and the required skill set for the double-weave Khes which do not exist anymore. The market of Khes has been replaced by blankets and printed dohars. Moreover, weavers are moving on to other professions because they are not earning enough for their hard work. Everyone is leaving handloom because it is extremely time-consuming and labor-intensive and is not well paid for. Khes has been losing its market for a long time now because there are a lot of options for consumers. People prefer buying newer products like dohars and blankets and it is because there is not much awareness about Khes amongst today's generation.

Our Efforts and Vision

We decided on documenting this craft because we wanted to inform the audience about how supporting a local craft rather than purchasing a variety of machine-made goods can be the first step towards sustainable and responsible consumption. We believe that as designers, we are responsible for informing the audience how we are at a stage where consuming thoughtfully is very important. Consuming goods made in the local ecosystem is the best way to fight consumerism.

Keywords: *Cultural contexts, weaves, climatic contents*

Sustainability Embedded in Indian Traditions

Mala and Pradeep Sinha
BODHI

From an Indian tradition point of view, 'waste' is a relatively new word and sustainability is the obvious and natural outcome of a culture that abhorred waste. I say this from personal experience having grown up both in large joint families and in a small nuclear family where, from food to footwear, nothing was ever casually thrown away.

I started my own small hand block printing unit in Vadodara in the early eighties. It was not easy to find experienced and trained block printers in Vadodara since the craft had a stronghold in Ahmedabad and craftsmen, especially migrant craftsmen, tend to flock together. Pradeep and I were therefore learning on the run with help from textile dye manufacturers, books, and journals. In the process, through habit, we attempted to simplify processes and save on materials.

Our workshop today is truly sustainable, and it has evolved over time rather naturally, and waste minimization is built into our system and processes. For example, we don't have large tanks with running water to wash fabric in; instead, we use recycled 200-liter drums without any running water.

We found we could do this without sacrificing quality if we did not use excess dyes and dye auxiliaries to start with. Accurate balances and written recipes helped us achieve this. For our soft water needs, we decided to harvest rainwater; it started with 200-liter recycled drums that were left to fill under the edge of the sloping lean-to, whereas now we store 30,000 liters in tanks for use through the year.

Our wastewater was going into the municipal drains, and we were aware that this was going to soon become illegal. We talked to experts who told us that the amount of effluent we were generating was so little that it would get diluted and indistinguishable from sewage by the time it reached the end of the road. But laws are a great leveler, and we were equated with large processing houses that discharge lacks of liters of wastewater per day compared to just a thousand liters from us.

We were told that it is almost impossible for a small unit like us to meet the discharge norms of GPCB, but as luck would have it, I met a microbiologist in Pune, Dr. Sandeep Joshi, who took up the challenge of treating our wastewater. It took time and a number of failures for the system to finally settle down. The result was a constructed wetland that uses a root zone method to microbiologically treat the effluent, which enables us to recycle water used in our process. We do not have the facilities to test our treated water regularly. Doing so in private labs remains an expensive affair, but whenever we have tested it, the results have shown it was good enough to discharge into the land or water bodies. But we prefer to recycle it and use it for secondary washing as required.

There was a time when we did a lot of pigment printing that requires baking to fix the dye on the fabric. It is generally done in ovens heated by steam, gas, or electricity. We experimented with solar energy using a solar cooker to bake sample fabrics, which we sent for testing to a lab. The samples passed with flying colours and thus started the saga of making solar hot rooms for baking our printed fabrics. They worked wonderfully; all we had to do was leave the fabrics in the solar hot rooms, essentially tin sheds painted black, for three days.

Here, the three days is important and differentiates between industrial production and hand processing. What can be achieved in five minutes using large amounts of energy and sophisticated machinery can be better

achieved with free solar energy if given time. In fact, centralized production on a large scale is one of the main contributors to upsetting the delicate balance of sustainability.

The greatest advantage we have in hand processing is the ability of the process to be carried out on a small scale scattered over a vast region that easily allows nature to balance itself with very little and simple interventions. With transport and communications networks now reaching remote parts of every region, the possibility of remote and small-scale production is possible more than ever before in the history of trade and production of goods.

It is now time to undo the legacy of the Industrial Revolution and take advantage of the empowerment that easily affordable technology, communications, and transportation networks provide.

Keywords: *Water, Natural dyes, Recycling, Environment*

Indian Handlooms - Future of the Luxury Segment

Archana Surana
Founder & Director ARCH College of Design & Business

*I*t all started with patronage….

Indeed, the handloom sector provided a wide landscape for creativity to flow. For all those who value and understand luxury to its core, our heritage textiles seem to hold a lot of meaning to us in terms of the beauty of nature brought seamlessly into our lives as a second skin, along with the livelihoods associated with it.

Alongside the storytelling that happened as a result, (possibly one of the very interesting and core purposes of fashion!), the tradition of weaving and the attire donned on important occasions got their value additionally with their built-in capacity to adapt to the climatic needs of the territory. Other than maintaining our connection to a beautiful rich heritage and the past, the semiotics and living traditions were nurtured and kept alive through these beautiful woven fabrics.

Today, though, there seems to be an affordability issue with these beautiful textiles. The general mass fashion market seems to be governed by the 'use and throw' mindset, with a preference for suitably low-cost tailored clothing. Though it is evident that the handloom industry has a low carbon footprint, as compared to other industries, consuming less mechanised technology and power, as it does, sustainability issues necessitate a fundamental paradigm shift in how people understand fashion and consumerism.

Rather than merely making more ecologically responsible products, the concept of sustainability should also lead to and promote a clothing production method that is more ethical and respectful to people, the environment and other co-habitants of this world. Although slow fashion is becoming more popular, what is less talked about is the importance of the sustainability of handlooms in the fast-growing fashion industry.

Handloom — be it cotton, tussar or silk — is breathable, and comfortable in our kind of climate. Besides being sustainable, it is also biodegradable. In India, the families of weavers of fabrics like Kota Doria, Chanderi, and Banarsi were patronised by the royals, so one sees that the art of weaving these fabrics was passed on from one generation of producers to another, along with stories, traditions and culture.

The natural essence of the yarn in its woven journey brought in sheer elegance, softness and lustre, which supremely suited the needs of aristocracy. Limited at the time to a specific segment of society, today, the rich and the famous, and a greater range of people can afford the luxury that once was the prerogative of royalty. The nouveau riche today have an opportunity to embrace these rich textiles. The younger generation too is made aware through education in schools through skill-based learnings and community outreach initiatives like craft documentation that have helped in the growth of the preference to wear handloom; that handloom fabrics have a more human touch to them and tell many stories of our living traditions. Hence the life cycle of the fabric is key for today's youth and the new generation who extend and continue the tradition of patronage.

In a study by Research & Markets, the ethical fashion industry is expected to reach $8.3 billion by 2025 at a CAGR of 9 per cent. With its diverse handloom products, and with luxury becoming key in these stressful times to relax one's mind and body, India has the perfect opportunity to thrive in global markets.

Kota Doria fabric from Kethun, Rajasthan (India), used mostly by the royals till now, has now evolved to become a popular fabric for sarees, stoles, dresses, etc. Due to the unique characteristics of this yard length, such beautiful sheers with breathability, transparency and lustre are of great aspirational value and significance, especially in these times of global warming, and in the warm zones of the planet.

Kota Doria was granted G.I. in July 2005 under the Geographical Registration Act 1999 which gives it the status to be recognised globally as a sustainable fabric with diverse applications right from clothing to made-ups. As environmental crises and natural calamities become more commonplace as a result of imprudent human activities, Indian handlooms offer a strong solution to achieve the UN's Sustainable Development Goals related to water and livelihoods, among others. "Atmanirbhar Bharat", a campaign focused on self-reliance and self-sustainability, can be achieved effortlessly through traditional handlooms such as Kota Doria, and its environment-friendly, autonomous, independent weaving procedure. As well as providing credible employment & livelihood, the industry itself presents a quality that supports and nurtures sustainable development and the reduction of gloomy impacts on the environment and ecology.

To revive the Indian handloom industry and ensure its sustainable growth, the key seems to lie in leveraging government schemes and initiatives, as well as developing innovative, relatable, and broadly affordable products — something that today's entrepreneurs and young startups tend to do, with aggressive promotions. World-class brands with conscious clothing in their mandate could be actively engaged in launching luxurious and high-end fashion with our beautiful weaves.

Indeed, the viable solution to reducing the growing carbon footprint of the fashion industry could be Indian Handlooms!

Keywords: *Climate suitability + future of ethical fashion vs. fast fashion*

Naga Community and North-East Traditions

Jesmina Zeliang
Founder-Director, Heirloom Naga

For most of the early 90s, when Heirloom Naga initially launched a collection of soft furnishings, its response was a pleasant surprise. To most people, these woven textiles were a far cry from the traditional textiles that they were familiar with.

These textiles, woven on the traditional back-strap loom, were immediately recognised by buyers for their sheer novelty. The stylised motifs, the colours, and the product range all resonated with the well-heeled customers. That was it. Not because it was woven only by women, how it was made, how sustainable it was, or the fact that the weaving processes did not harm the environment in any way! They were approved because they were thoughtfully styled for contemporary trends.

However, there was a lot of explaining to do. Why did it cost so much? Where was the factory located? How will you ensure uniformity if all the weavers are home-based? These were a constant refrain. Sensitising the customers then became so critical. While some empathised, many more sniggered. But so far, so good.

Enter the millennium. The domestic market demand had by then dimmed. But the determination to keep going kept us afloat. The fact that these textiles found their way to several high-end stores overseas for the first time from Nagaland spoke volumes of the expertise of our weavers. Surely, their work needed to be sustained. This challenge was enormous. How do you ensure continuity of work for the hundreds of weavers who have been successfully skilled in standardisation? How do you address the global market from your remote landlocked state? By then, it was crystal clear that to provide uninterrupted work to our weavers, direct exports were the only answer. And that too, to a chain of stores. Thus began a conscious effort to redesign and reimagine our existing line to suit different markets. Market intelligence is what we swore to get by. Being on the right B2B platforms, being sold through the right retail partners, being trendy and being the trendsetter; these deliverables ensured that we bounced back.

After the millennium, by growing organically, we seem to fit in most of the indicators of sustainability. Coming from a state where it is considered taboo for men to weave, we have been empowering our women without displacing them from the comforts of their homes. And for a state which has a limited scope of employment, owing to the turbulent political climate, especially in the rural areas, weaving then becomes the prime occupation.

A few decades ago, the term “Made in Nagaland” did not hold much meaning to people outside the state. But today, to most in the know, it assumes great significance; it denotes a craft product that preserves cultural legacy, supports large communities of weavers, and showcases exquisite craftsmanship.

The challenges to keeping weaving traditions intact continue. With the younger generation seeking comfortable, more glamorous jobs, the handloom sector is the least sought-after occupation.

So how do we address this? For far too long, this sector has been looked at through the prism of empathy or romanticised, doing little to improve a lot of our weavers. We need to change the lens. Reposition by roping in commerce is the crucial driver. Firstly, encourage the use of indigenous fibres, and natural dyes and keep the design language relevant. Finding the right markets, setting up aggregation centres instead of working in

silos, weaving for the world without losing our roots, encouraging tradition to coexist with modern trends and demands, and making them commercial. Other steps include investing in research and development, training and skilling, design, investing in comfortable and conducive workspaces, marketing, and building a brand that proudly advertises the rigorous labour and multiple steps required to weave even the simplest fabric.

All said and done, a holistic approach is needed. To win over new, young stakeholders, an atmosphere of better business opportunities and aggressive campaigns via influencers detailing the sustainable aspects is a must.

In most tribal communities such as the Nagas, the woven cloth they wear is their identity. With 17 major tribes and several sub-tribes, each owning their own cloth, the culture of these tribes is preserved through their textiles. This then best describes the huge role of the handloom sector.

Keywords: *Traditions, Market, Women, Business opportunity*

CONCLUSION

Conclusion

This joint study by UNEP and CEE highlights the continuing relevance of Indian handloom traditions which have tremendous potential to be scaled up in ways which would not only conserve our rich cultural heritage but would also open up avenues for skill based sustainable livelihood opportunities for millions in India.

Dating back into pre-history and drawing on such shared memories as the fabled Silk Route which traversed the medieval world, the legacy of hand-spinning and hand- weaving was transformed by Mahatma Gandhi in the 20th century into a strategy for freedom from colonial oppression. The handloom was transformed into a metaphor for the dignity and self-worth of millions. The power of the hand-made takes new meaning today with the global quest for sustainable futures which can be linked directly to the 17 Sustainable Development Goals. Thus, the documentation presents an overview of not only how diverse these traditions are from a crafts perspective, but it also captures the key elements that showcase how these traditions built on local natural resources and connected with local ecology.

Further, these pages have explored the opportunity of recovering an intrinsic Indian mindset, a centuries-old attitude in which the hand-made, frugality, recycling and up-cycling have been a way of life, now threatened by market-driven models imported from elsewhere. The challenge set out here is that of striking a balance between what can be decentralized, handmade and spread across vast regions with what should be mechanized and mass- produced. The challenge is also, how to safeguard the intangible essence of handloom traditions- sustainability and connect with nature - and not only the outer tangible forms.

The study analyzes handloom traditions using an SDG framework, exploring its links with biodiversity and nature, water, decentralized livelihoods, economic opportunities for women, energy consumption, climate change and circularity.

Contributors, through reflective articles have shared their understanding of 'slow and sustainable- handloom production that can help harness opportunities to benefit not just India but the world.

The experience recorded here, brought together from across the country, reflects evidence of handloom production offering home-based, decentralized rural livelihood opportunities using local materials and local skills and directly addressing the needs of those still at the margins of society. These include growing indigenous varieties of cotton that have advantages for water and soil conservation, for controlling pollution and waste of natural resources as well as for empowering women and others most in need. Women, emerge from this study, as critical to every stage of the handloom process – pre-loom, post-loom, and distribution.The outcome is livelihoods that empower through such an astonishing range of cotton, silk and other fibers, creating fabrics may it be the Mangalagiri Sari or the Muga silk of Assam, unsurpassed in beauty. These offer not just aesthetics but also the advantages of breathable, comfortable, bio- degradable garments completely suited to local climates. Handloom USPs do not end there. They provide empowering identities that challenge the threat of global sameness, helping to harness and revive local traditions which may have languished with changing tastes and market competition. Contributors point out that both at home and overseas, the demand for handmade quality is unlimited as an emerging new generation demands alternatives that are distinct and that move away from imitating of unsustainable patterns of over-

consumption.

The opportunities presented here are reinforced by the reality that weaving and handcraft represent the second largest source of rural livelihoods after agriculture. Covid-19 has made more urgent the challenge of building non-farm rural livelihoods on a massive scale at a time when jobless growth can be the outcome of economic slowdown, global uncertainties and new technologies. The magnet of urban opportunities has also weakened with the human costs of migration demonstrated at such a scale during the pandemic.

Experiments in innovation that have moved away from large-scale centralization toward smaller- scale sustainability such as Malkha or Natural Colours of Uttarakand are described in this study. India emerges from these pages as a crucible of diversity, contrasting starkly to the uniformity imposed elsewhere by mill and man-made fibres. Experiments recorded here demonstrate possibilities for moving away from large-scale centralization to smaller-scale sustainability spread over vast regions. Through shared wisdom, striking a balance between what is made by hand and what machines can offer has emerged as a practical possibility.

The Green Economy thus emerges in this document as a focus for learning and action, with huge social possibilities. The urgency of climate change has brought innovations and better practices described here toward minimizing use of scarce water resources and of synthetic materials that risk upsetting the eco-balance essential between animal, human and natural resources. Contributors describe their experience with rejuvenating local cotton varieties such as Kala Cotton that require little water, use no pesticides or fertilizers, of 'humane' mulberry silks that offer a wider hue of colour and texture made possible by hand, wools that range from the coarsest to the finest and that encourage conservation of indigenous breeds of livestock : camel, goat, sheep and antelope.

It is pointed out that using these opportunities to the best advantage demands emphasis on creating, transforming and building a demand for handmade quality. The future will ultimately depend on achieving a fundamental paradigm shift that helps consumers to understand what SDG 12 actually implies: responsible production and consumption as the ultimate anchor for change. In this, perhaps the most important path indicated on these pages is that of education that can lead to adjustments in individual and community behaviors. (One estimate quoted here is of an ethical fashion industry that may touch $8.3B by 2025). Both makers and consumers must share basic values needed in order to fully understand the importance of consuming less and of human limits to scale. Case studies like Kala cotton, demonstrate an approach of reviving the entire value chain through engaging multiple stakeholders and tapping into potentials that the market has to offer.

While handloom offers enormous opportunity to move towards a low carbon, decentralized economy, there are several critical challenges that must be addressed to realize the potential of handlooms to the fullest. One of the most critical challenges is to ensure that weavers are rewarded well so that their interest to continue with the livelihood remains. Many of the traditional handloom practices are quite complex, demand true interest and high level of skills along with precision. While the older generation practices the traditions as they have a close cultural bond, this is not the case with the younger generation whose aspirations are lured by the global economy and urban lifestyle. How to sustain the interest of younger generation in learning and continuing these traditional skills is a

critical challenge which must be addressed. The study also points out the challenges that emerge when developmental interventions result in degradation of ecosystems and loss of biodiversity on which these traditions flourish. One of the challenges that the handloom industry is facing is from the very segment that is the backbone of creating fashion – fashion and textile designers. While there is great enthusiasm among the design community to use traditional handloom art forms, there are still compromises that happen on 'how much handloom is actually hand-made'.

The marketplace is the space within which these challenges and opportunities will be demonstrated and worked out. These will need to take into full account the huge competition from rapid changes in markets and technologies, building management and marketing capacities, and reaching out particularly to new generations of makers and consumers. The case studies presented here show efforts made in this direction. Meeting challenges of financial viability for the weavers through policy level interventions, or market-based support systems, emerges as a critical need for handlooms to sustain. Another important aspect to work on, is ensuring the conservation and sustainable management of natural resources which are the source of raw material for handloom practices. Perhaps the most important path indicated on these pages is that of education that can lead to changes in individual and community behaviors. Both makers and users must share basic values needed in order to fully understand the human limit to scale and the importance of consuming less. With its enormous domestic market, India has the opportunity to realize key aspirations articulated in this document. It is offered as a step in a journey that acknowledges the unlimited demand across the globe for hand-made quality and for products that respect makers and users and the earth that shelters them.

Way forward

The study highlights some key areas, interventions which can act as enablers in conserving, reviving and scaling up Indian Handloom traditions as one of the pathway to achieve India's net zero ambition while achieving several SDGs.

Education and Awareness

- Awareness generation at the national level (including among corporates) on the SDGs and what the handmade sector offers to national/global efforts toward the achievement of Agenda 2030.
- Education and training that is value- based, targeting makers and users. This must help shift perceptions from quantity to quality, and to raise understanding of what responsible production and responsible consumption (SDG 12) really mean in social and economic terms.
- Introducing sustainability and circularity values of Indian textile traditions, in detail in the curricular structure of academic institutes dealing with textile and fashion industry can go a long way in creating a cadre of fashion or textile designers that promote sustainable handloom traditions.

Strengthening Natural Resource Base

- Focus on the Green Economy and the range of opportunities for expanding the options and experiences described in this report. These include the development of local varieties, drawing on Kala/Malkha cotton, Eri/Muga silk and other fibre experiments.
- Conservation and restoration efforts to ensure the continued availability of natural resources – indigenous seeds, local breeds and other

flora-fauna which provide raw material as fibre, material for tools, or natural dyes.

Financial Viability for weavers

- Attention to the potential and to the needs of women and other marginalized groups who comprise the bulk of India's hand sector. Pastoral communities and landlocked regions are crucial to the Green Economy. They need visibility and voice.
- Address key concerns of weavers: fair wages, yarn supply, social security, lifting capacities through education and training with special attention to new generations that need the hope of sustainable livelihood, greater agency and sustained opportunity.

Supporting Innovations

- Support to technical and environmental innovation and experimentation, including workshops that can demonstrate sustainability options at a local level.
- Marketing management recognized as the key to lasting change, including demand creation and expanding the entrepreneurship capacities of all stakeholders. Access to new technologies, design and market intelligence, management factors (including IPR and GI) is crucial.

Policy Coherence

- Certification schemes that can build consumer trust and attest to authenticity and social/environmental responsibility.
- Develop the platforms that can offer spaces for partnership and collaboration between stakeholders, and for the voices of artisans to influence policy including financial allocations.
- Mobilise the full range of sector authorities and stakeholders towardpolicy coherence and priority at national and state levels. Together these comprise India's handmade advantage, yet today lack the synergy essential for impact and change. This report can offer an opportunity for joint understanding and action, including on balancing handmade and machine-made alternatives.

Through these efforts, we need to build a pyramid of opportunity with a strong R&D base, with opportunities for experiments and innovation, for keeping skills and aspirations alive, and for opening avenues for stakeholders to move upwards in social and economic terms.

India has committed to becoming a Net Zero Country by 2070. Handloom has not only archival value but it is an inevitable partner in India's journey towards a green future, in becoming net zero country by 2070. Through synergized efforts and a wider understanding with positioning handloom not just as a cultural revival process, but as a global solution to move towards sustainable fashion would certainly go a long way in making India a global leader in sustainable textiles.

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