



# Sustainable Fabric Surface Embellishment

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**Abstract:** This review paper focuses on sustainable fabric surface embellishment with special reference to traditional embroidery techniques such as Kantha embroidery and patchwork. The textile industry is one of the major contributors to environmental pollution due to excessive use of water, chemicals, and energy. In recent years, there has been a growing demand for eco-friendly and sustainable fashion. This study highlights how traditional hand embroidery techniques support sustainability by reusing old fabrics, reducing waste, and minimizing the use of machines and energy. Kantha embroidery, originating from West Bengal and Bangladesh, and patchwork techniques from regions like Rajasthan and Gujarat are discussed in terms of their history, process, and cultural importance. These techniques not only promote environmental conservation but also provide livelihood opportunities to rural artisans and help preserve traditional crafts. The paper emphasizes that sustainable embroidery practices play a vital role in promoting responsible fashion and reducing the negative impact of the textile industry on the environment.

## I. INTRODUCTION

The textile industry creates a lot of pollution because it uses large amount of water, Chemicals and energy. Today, people are becoming more aware of environmental problems, so they prefer eco- friendly and sustainable fashion. Embroidery is an important part of textile because it adds beauty and cultural value to Fabrics. Sustainable and eco-friendly practices in textile embroidery means making embroidered products in a way that does not harm the environment and support workers. It includes using natural and organic fabric like cotton silk and linen. It also involves using natural dye instead of chemical dyes reducing water and energy use, and avoiding waste. Handmade embroidery techniques such as Kantha and patch work are more sustainable because they are using less electricity and machines sustainability in embroidery also means giving fair wages and safe working conditions to Artisans. It helps protect traditional silk and support rural communities. By following ecofriendly practices, the embroidery sector can reduce pollution and promote responsible fashion the present study addresses a significant gap in the existing literature by exploring the relevance of traditional embroidery crafts within the framework of sustainable. It has been discovered that their help lies in sustainable innovation to preserve traditional crafts, just as blockchain technology depends on infrastructure adaptation [Rahman,S.M., (2025)].

## II. HISTORY OF EMBROIDERY

Embroidery is the art of decorating fabric with needle and thread. It is a very old craft that started thousands of years ago. Embroidery was first seen in ancient civilization like ancient Egypt, China and India. In these countries, people use embroidery to decorate clothes royal garment and religious items. Kings, queens, and rich people wore heavily embroidered dresses to show their status. One of the distinctive aspects of indigenous handcrafted textiles is the use of embroidery. Motifs found on garments range from geometric patterns, zig-zag, spirals, moons, crosses and stepped frets. Spirals and curved designs appear frequently, especially in the centre and south of the country. in addition to flowers, other themes from nature in woven Indigenous and embroidered designs include plants, animals such a squirrels, rabbits, deer, armadillos, doves, humming birds, pelicans, seagulls and fish. [Dash, A. K. (2019)]

## Why it is sustainable

Kantha embroidery and patchwork is are sustainable because they are no using machines sustainability in embroidery also means giving fair wages and safe working conditions to Artisans. Kantha embroidery handmade embroidery and this embroidery use old cloth. [ Hoque, M. A (2021)] It is mainly usually made on old saris and dhotis. Kanta is a simple and eco-friendly embroidery made by reusing old clothes This are eco-friendly and sustainable gives old cloth a new life. Sustainable thread uses like cotton, silk and linen.

Traditionally; as a raw material the old saris & dhoti material is used. and even the thread for, embroidery the colorful threads from old saris Barder, pally used to be collected. as result it gives an approach to a sustainability.

[Chattopadhyay, K. (2019)] It is hand embroidery the machines are not required

Sustainable Embroidery

[1] Kantha Embroidery

As it is mentioned it is the oldest embroidery of India as it is practiced from the pre-Vedic age and it is evident in earliest texts. Kantha is a style of running stitch as well as it refers to the finished clothes. One of the oldest traditions of stitching originating from India was observed back to the pre-Vedic age. This stitch was worked upon the patchworks of the thrifts like rags, old dhotis, clothes that was practiced by rural women of eastern India states of West Bengal and Bangladesh. Ancient kanthas had the symbols of Gods and demigods embroidered on the quilts which made it more attractive to look at also the use these kantha to celebrate any festival or household occasions. The history of kantha embroidery is extensive and closely linked to Bengali women's domestic lives. Ancient Sanskrit texts and literature contain references to comparable embroidery techniques, indicating a long-standing tradition. Kantha was traditionally a craft this connected mainly rural of Bengal. Women in the villages practiced it, and it was very important to household domestic life there. Originally Kantha embroidery was used for practical purposes. Women made quilts and blankets out of discarded, worn-out material like saree and dhoti by layering and sewing them together. Kantha embroidery is the traditional hand stitch art. Mainly used a simple running stitch, called the kantha stitch within small length stitch. This makes it eco-friendly and sustainable gives old cloth a new life. bright cotton threads in different colour like red, blue, green and yellow are used. Many layers of old fabric are stitched together to make quilts, blankets and covers. Design include flowers, birds, animal and simple shapes Kantha is used for quilts, saris, Dupatta bags and other items. it is both useful and beautiful. Kantha embroideries a traditional craft from West Bengal and Bangladesh made by stitching layer of old cotton fabric like sarees and dhotis. Usually, 5-7 layer of cloth are placed together, with a light-coloured fabric on a top. the fabric is cut, ironed and loosely stitched at the edges to hold the together. Then small running stitches are made starting from one corner in parallel lines to create designs. Cotton fabric is mostly used because it is easier to stitch and does not split like Silk. Kanta is a simple and eco-friendly embroidery made by reusing old clothes



Plate: 1.1 Kantha Embroidery (sample)

### History of kantha embroidery

This is one of the most ancient forms of Indian embroidery forms, whose origins can be traced back to the pre-Vedic age (approx. 1500 BCE). Kantha embroidery originated in the Indian subcontinent, particularly in regions like Bengal and Bangladesh. It has a rich history, with roots tracing back to rural communities' daily lives and cultural practices. The name of the embroidery Kantha has origin, as it is derived from a Sanskrit word kantha, meaning rags. As it is mentioned it is the oldest practiced embroidery of India as it is practiced from the pre-Vedic age and it is evident in earliest texts. The Indian subcontinent especially the Bengal region, which includes portions of modern days Bangladesh and the Indian state of West Bengal, is home to the traditional craft of Kanta embroidery. The term "throat" (Kantha) in Sanskrit describe the basic running stitch that is used in this type of embroidery.

### Kantha Embroidery Motifs

- In kantha embroidery use motifs mostly floral patterns, geometric shapes, animals, and mythological symbols.
- see birds, fishes, creepers, trees, and flowers.
- **The Lotus:** This is the most common motif, found in the centre of many pieces. It represents the universe and the power of life.

### Kantha stitching Process

#### Step 1.

Give fabric layer of old cotton fabric like sarees and dhotis. usually, 5-7 layer of cloth are placed together, with a light-coloured fabric on a top.

#### Step 2.

Trace the design onto the fabric. Use carbon paper along with tracing paper to copy the design. You can freehand if you are

even slightly artistic.

**Step 3.**

Thread the needle with two strands of embroidery thread or cotton thread. Tie a knot at the end. Bring the needle from the back of the cloth to the right side from one end of the design. Do one long line of running stitches all along the outline.

**Step4**

Fill the outline with rows of running stitches parallel to the outline. The space between the two adjacent lines should be as small as possible for the design to look beautiful.

There are two ways of working the kantha stitches in rows. Aligning them perfectly and alternating them as given below.

**Type of kantha embroidery**

**[1] Sujani**

Sujni, the word said to have originated from a Persian word ‘sozni,’ which means needle. Sujni is an art of embroidery from Bihar state of India, which is similar to the world famous “Kantha” from neighbouring state Bengal of India. The term “Sujni” is referred for straight running stitch. Sujni is the source of livelihood of many women. It has a universal appeal to cater wider market. Embroidery is beautifully embellished with the help of needle and thread. The 18th century marks the beginning of the embroidery Sujani quilt's traditional production. Its main objective was to provide newborn babies with a cosy blanket as soon as possible after birth. A basic running thread was used to weave pieces of cloth in various colours from old saris and dhotis together to create the final product. With this method, three or four old sari or dhoti patches were used, put one over the other, and then quilted together using thread also taken from the abandoned clothing. Sujni was made for embroidering quilts using geometrical patterns, but soon when it came under Bihar's influence, the art practiced on the cloth was Madhubani embroidery. The making of a Sujni quilt is simple by layering one or two quilts. Technique used of Sujani embroidery

The most crucial requirement is to utilise a foundation cloth made of readily available basic materials. Using a tracing wheel and tracing sheet, the pattern is first traced into the foundation fabric. The background is then started to be drawn by fine running stitches. And finally, the designs are outlined with black or brown threads and coloured threads are utilised to provide colour. A needle, frame, scissor, various coloured threads, inch tape, tracing paper, tracing wheel, pencil, rubber, blue chalk, and kerosene are needed to complete the Sujani stitch. [Mahbub, T., Noor, M. A. (2022)]

**[2] Naskhi kantha**

Naskhi kantha is another type of stitching which represents Bengal's culture and tradition. Naskhi came from the word Naksha (in Bangla) inferred as something decorative, some patterns or designs. It is mostly seen and produced in the places like Bakshiganj, Dewanganj, Madarganj, Islampur, Melandah and upazila of Jamalpur. This is the reason Jamalpur district is known by many people as ‘City of Handicrafts’ and ‘Naskhi Kantha’ as Jamalpur District Branding. Naskhi is the signficatory stitch or art form of Bengalis. The images on the kantha depicts the lives of farmers, labourers embroidered or painted with vibrant colours like red, yellow, blue. The very fascinating designs that the whole Bengal is portrayed on a single cloth in the seams of sewing. The beauty of Naskhi kantha is the shape of whatever the design has been traced on the cloth. The thread would follow the marked design making a net or a loop like complex geometric pattern; while on the reverse it would look like a simple straight running kantha stitch.’

	Kantha Embroidery	Sujani Embroidery	Nakshi Kantha
Origin Place	Mainly from West Bengal and Bangladesh	From Bihar	From West Bengal and Bangladesh
Meaning	Kantha means stitched cloth made from old fabric	Sujani means decorated quilt made with embroidery	Nakshi means decorative or designed Kantha
Design Style	Simple repeated patterns	Storytelling designs showing daily life, animals, and people	Very decorative and artistic designs
Stitches	Simple running stitch	Mostly running stitch and filling stitches	Fine running stitch with detailed patterns
Use of Fabric	Layers of old cloth are used	Usually, old cotton cloth is used	Usually, soft cotton fabric is used
Appearance	Designs are simple and traditional	Designs are bold and meaningful	Designs are very detailed and beautiful

Table No: 1.1 difference between Kantha, Sujani, Naskhi Embroider

**[2] Patchwork**

**Fabric Art of Fabric**

This method is eco-friendly because it reuses old or extra cloth instead of wasting it. patchwork embroidery is a

textile technique in which small pieces of the fabric are cut and stitched together to make a decorative design. Different colors, patterns and shapes of fabric are joined to create a beautiful surface. After joining the pieces, embroidery stitching is often added to decorate the patchwork. The initial appearance of the patch is as a practical item. Material shortage of the times, people will be the original old fabric or clothing, cut into cloth pieces together, made to withstand the cold quilts, clothing. With the gradual improvement of people's living standards, Patchwork gradually began to artistic, decorative direction.



Plate: 1.2 Patchwork Embroidery (sample)

**History**

A) Quilting has a rich history that dates back centuries. It is believed to have originated in ancient Egypt. Patchwork has been practiced since ancient times. Early examples of patchwork were found in countries like Egypt, China, and India, where people joined small pieces of cloth to make garments, blankets, and household items. This method helped people save fabric because cloth was expensive and difficult to produce. Patchwork embroidery is commonly found in traditional textile of region like Rajasthan and Gujarat where artisans use leftover fabric pieces to make quilts, garments.

**B) Process patchwork**

Patchwork textile is made by joining small pieces of fabric to create a larger decorative design. First, different pieces of fabric are selected. These fabrics can be cotton, silk, or other materials. Different colors and patterns are chosen to make the design attractive. The fabric pieces are cut into required shapes such as squares, triangles, rectangles, or circles. All pieces should be cut carefully so that they fit together properly. The cut pieces are arranged on a flat surface to form a design. The arrangement is checked before stitching to make sure the pattern looks balanced and neat.

The fabric pieces are stitched together using a needle and thread or a sewing machine. Small stitches are used to join the pieces neatly. After stitching, the seams are pressed with an iron. This helps the patchwork lie flat and look smooth. A base cloth or backing fabric is attached to make the patchwork strong and durable. The edges are folded and stitched to give a clean finish.

	Rajasthan Patchwork	Gujarat Patchwork
Colours	Warm and earthy colours like red, orange, yellow, and brown	Very bright colours like pink, green, blue, and orange
Design Style	Simple and geometric designs such as squares and triangles	Bright and detailed designs with many small pieces
Purpose	Used for quilts, bedspreads, and wall hangings	Used for clothes, bags, quilts, and decorations
Appearance	Simple and traditional look	Colourful and decorative look
Traditional Use	Mostly for household items	Used for both clothing and household items

Table No: 1.2 difference between Rajasthan and Gujarat patchwork

**III.CONCLUSION**

Sustainable fabric surface embellishment combines traditional embroidery techniques with eco-friendly practices to reduce environmental impact. Methods like Kantha embroidery and patchwork promote sustainability by reusing old fabrics, minimizing waste, and reducing the use of machines, water, and chemicals. These handmade techniques not only preserve cultural heritage but also support artisans by providing fair livelihoods. Overall, sustainable embroidery plays an important role in creating responsible fashion while protecting the environment and maintaining traditional crafts.

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