

**INNOVATION IN DESIGN OF TRADITIONAL MASHRU TEXTILES FOR  
PRODUCT DIVERSIFICATION**

**Synopsis of Proposed Ph. D. Thesis**

**By**

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## **Endorsement from the Supervisor**

Ms. Priyanka Kumari has researched extensively on the topic “Innovation in Design of Traditional Mashru Textile for Product Diversification” vide registration no. FoFCSC/2/150 (Dated: 07-08-2013). She has presented her progress of work in seminars well attended by teachers and students of department.

She has presented following papers:

**“Design intervention for handloom silk fabric of Bihar”**, in International conference on Empowering Khadi and Handloom through Design Intervention Organized by Consortium of Green Fashion, an initiative of School of Fashion Technology, Pune and in association with Department of Clothing and Textiles faculty of Family and community Science The Maharaja Sayajirao University of Baroda on 30<sup>th</sup> September and 01<sup>st</sup> October 2016.

**“Mesmerizing Mashru Craft and Need of Geographical Indication (GI)”**, in International Case Symposium on Fashion, Retail & Management Organized by Department of Fashion Management Studies–NIFT, Bhubneshwar India on 19<sup>th</sup> and 20<sup>th</sup> November 2015.

She has published following papers:

**“Voyage of a traditional woven craft – Mashru”** , in proceedings of International Textiles and Costume Congress -2015 organized by Marmara University, Istanbul , Turkey on 4<sup>th</sup> -6<sup>th</sup> November 2015 (**ISBN:978-605-87108-4-9**)

**“Mesmerizing Mashru Craft and need of Geographical Indication (GI)”** in book named “Case Handbook of Fashion, Retail and Management”, Publisher- **Pragun Publication**, year of publication-2018, [**ISBN 978-93-80397-90-0**]

Ms. Priyanka Kumari has also undertaken a project titled - **Revitalization of Traditional Woven Craft of Gujarat “MASHRU”** with the **Research and Consultancy Cell of The M.S. University of Baroda** for the design and

development of Mashru samples in silk and rayon warp and cotton weft with artisans of Patan.

Synopsis approved by



Prof. (Dr) Anjali Karolia  
Guide and Dean

## 1 INTRODUCTION

Craft is an innate expression; an outcome of coordination of mind, soul and hand where desire takes a tangible edifice. The beauty of each crafted edifice lies in the individual manifestation of imitation of nature, personalized transformation of natural material and their wide chromatic and visual representation. It's the root of intellectual thinking; a thought process which is echoed through a form or picture or technique or their combination. In fact each craft itself is a philosophy followed by specific community which is defined by its making process. The existence of faith in the philosophy is reflected through its followers practicing it and making its presence till today. No matter whatever change has taken it has survived itself in form of various ritual or belief or practice. Having its association with us since the origin and development of mankind, it's a practice of antiquity and inherent pleasure. Craft is an art of golden hands which is acquired over a period of time after a formal or informal training. Craft is the Creative use of hand skills and tools with a conceptual understanding of materials to develop effective, usable, sellable product; an output which changes with respect to time. This experience can be created in indigenous locality and can be disseminated in urban spaces. 'Crafting, weaving and other forms of artisanship are community activities, which at the same time assert community identities. This is done subconsciously and is related to historical and cultural influences and the social, religious and domestic needs of the community, tribe or even race. Bamboo artifacts for hunting and thickly woven deep-hued dhotis for women who work on the land, the finest muslins for feudal courts, pastel silk tones on embroidered shawls as an item of export, votive offerings to propitiate the goods of the forest –all these bear the imprint of a specific design, suited to a specific purpose rooted in time. The several ethnic tribes of nomadic herdsmen spread across central Asia, down through Kashmir, Rajasthan, the Rann of Kutch in Gujarat, the Thar desert in Pakistan are examples of identities established through handcrafted objects of daily life'. [10] According to M.P.Ranjan 'Crafts can be defined as "those activities that deal with the conversion of specific materials into products, using primarily hand skills with simple tools and employing the local traditional wisdom of craft processes'. Such activities usually form the core economic activity of a community of people called 'craftsmen'.

Jaya Jaitly describes craft as an act of relating oneself with the creator or the supreme power. "It is the single thread of consciousness that links man's activities with the creator, who is, after all,

a creation of the mind. If one sees a craftsman at work one will see this very process in operation. The spiritual process is a linking of the highly individual inner self to the movements of the hand, then on to the needs of the community and the larger web of society, finally to connect with the world and the cosmos'. [10] The most astonishing feature of community products is the way in which an artisan utilizes his ability of creation for the group; his own spirit of manifestation adds value to both the innate self as well as his inherent group. Two persons working at two different places come out with the work of similar character. An unseen thread ties spirit of one person to the other to bring a common essence of connectivity. Jaitly states that 'in India, craft is a community industry performed for community service, and the intention is for its wide use rather than its wide appreciation, or the specific recognition of individual maker. And yet, each is a piece unto itself-the creator of a unique pair of hands'. [10]

Indian craft had been very popular throughout the world for its tradition of excellent craftsmanship, refinement, utility and aesthetic value which has been transferred from one generation to other since long. Its evidence could be traced long back to Mohenjo-Daro period where remnant of madder dyed fabric and spindles has been found. Since it is a living tradition, so it very dynamic and evolutionary in nature and keep on adding new meaning and dimensions to its core. If we talk about earlier concept, it were mainly associated with aesthetic, culture, utility, recreation and royalty but today it is transforming into a symbol of fashion, status, luxury, social statement and sustainability. However being associated with so many connotations it is still struggling for its survival and quest of truly existed craft spirit. Weaving is very important from cultural and social perspective that is why it had been seen as a vital profession. This has been very well supported by abundant, diverse natural resources and craftsmanship, knowledge of people. That is why almost every region came out with its own specialized range of techniques and products. Other fortunate reasons had been its climatic condition, availability of water and political support which has patronized art and craft for its promotion. It has been a great means of recreation also. The foundation had been very strong that is why it is able to survive till today after going through many centuries and traumas.

Mashru is an important traditional textile of India, earlier it has flourished in several parts of India but at present it is mainly limited to Patan and Bhuj of Gujarat. According to Muslim ceremonial law silk is prohibited to wear; therefore Mashru came as a solution to wear silk without breaking the law. Mashru comprises of silk warp and cotton weft in satin weave due to

which silk lies at surface and cotton below it touching the skin. Therefore Mashru means 'permitted' in this context. It is also known as Misru which means mixed. [4] It denotes textiles which are not of pure silk but mixed with cotton because orthodox Muslim men –not their ladies are forbidden to wear pure sulk fabrics. In time of war or plague, exceptions are made.

At present this craft is at the verge of extinction. The change in the lifestyle and attitude of people, preference of global brands and imitation developed on power loom has shrined the growth of this craft. This arise the need to revive the craft. Also the upcoming trend of shift from globalization to localization shows huge potential in its revival. Therefore researcher has undertaken the study titled "Innovation in Design of Traditional Mashru Textiles for Product Diversification". Here researcher has played with various parameters like warp yarn, yarn-count, reed-pick, placement of motifs, layout and revival of certain obsolete technique in order to develop innovative patterns that can fit into Mashru's array.

### **1.1 Purpose of the Study**

India is globally acclaimed for its traditional textiles throughout the world due to its wide range of technique and variety. Especially handloom textiles constitute a major proportion in it. Brocade is one of the popular categories in handlooms. It's a technique of making decorative fabric using supplementary warp and weft. Few of the popular variety of brocade fabrics are Banarasi, Maheshwari, Chanderi, Jamdani etc. Mashru also comes under this category of brocade. It has been a neglected form of brocade since long. Its reason can be associated with the depleting number of Mashru centers throughout the country, unawareness among people about the fabric, tedious process of making not being supported through technological up gradation, unsatisfactory socio-economic situation of weavers, lack of demand, poor connectivity of market, availability of lesser variety of designs etc. The purpose of the study is to develop new innovative designs for Mashru with goal of its sustenance. Innovation is a complex process and the level of complexity twig to the researcher depending upon the infrastructure and other supports available. Here after looking into the existing and traditional specimens of fabric as well as the infrastructure researcher has thought of incremental change rather than disruptive change. Such a change that can be easily executed by the artisans involved at the grass level of

production. This can easily help artisan in bringing new range of fabric which is different from the present range as well as same in terms of essence. Here researcher has played with several variables like count, yarn density, thickness (GSM), material, motif and layout in order to give wide range of products as well to target several segments of customers. To make the developed fabric functional for different purpose above experiment with variables have been done. The traditional palette and weave of the Mashru was kept constant among all developed varieties to keep the visual identity intact. The first and foremost striking features of Mashru are its color and weave. That is why researcher decided to keep these variables untouched, otherwise the resulting fabric will no more Mashru. The entire development was divided under three categories as per material and further it was subdivided under three classes as per design variables like stripe, butti and Ikat. The overall, purpose of the study was to connect Mashru to wider audience, to develop and sustain quality product, to sustain employment at grass root level in the ingenious place of production using traditional wisdom, to develop local and light product.

## **1.2 Objectives of the study**

1.2.1 To document the origin and history of Mashru fabric.

1.2.2 To document the production process of Mashru.

1.2.3 To document the designs and motifs of Mashru with its significance.

1.2.4 To assess the existing status of Mashru in Patan and Bhuj.

1.2.5 To design and develop new Mashru fabrics.

1.2.6 To analyze the market acceptability of developed fabrics in terms of yarn, design and aesthetics.

1.2.7 To promote Mashru through product diversification of developed fabric.

## **1.3 Delimitation of the study:**

1.3.1 The study was limited to Patan and Bhuj Mashru production centers of Gujarat only.

1.3.2 The designing of product was limited to three material category –mulberry silk, combination of tasar and mulberry or only tasar and rayon warp with cotton weft.

1.3.3 The design in each material category were limited to three variables-stripe, butti and Ikat.

1.3.4 The colors of the developed designs were limited to the traditional color palette of Mashru.

#### **1.4 Scope of the study:**

- New design and development has the potential to sustain any craft form. With this view new fabrics were developed to make Mashru a sustained craft.
- The study will create better prospect for Mashru fabric as in any market there is constant requirement of new designs, especially for Mashru, it is very crucial.
- Development of new designs with several warps will help in tapping broader market segment.
- Addition of new raw material will give new texture and appearance to the fabric which can invite more customers.
- Play of variables in the fabric will lead to several quality of product which will infuse wider choice and application to users.
- Reuse of mulberry silk in Mashru will help in regaining its lost charm.
- Incorporation of Tasar yarn in warp may attract those consumers who believe in nonviolence (ahinsha).

## **2 REVIEW OF LITERATURE**

This chapter deals with the relevant and related published and unpublished studies which are important to Mashru textiles. It was done through various sources like libraries, museums, scholarly journals, books, magazines, newspaper, blogs and websites with the aim to understand the overview of craft, handloom textiles in general and specific to Mashru. Moreover, it was also carried out to understand methodology and result of the study that has been already conducted in related field. However, researches related to Mashru were not much; so broadly comprehensive study was done in order to fit into larger field of research. The covered facet to conduct the study were as follows-

- 2.1. Meaning and importance of Craft, Design, Culture, Handloom textile and their evolution
- 2.2. Historical perspective of woven textiles of India and Gujarat
- 2.3. Review related to brocade and silk weaving
- 2.4. Review related to Mashru and other mixed fabrics

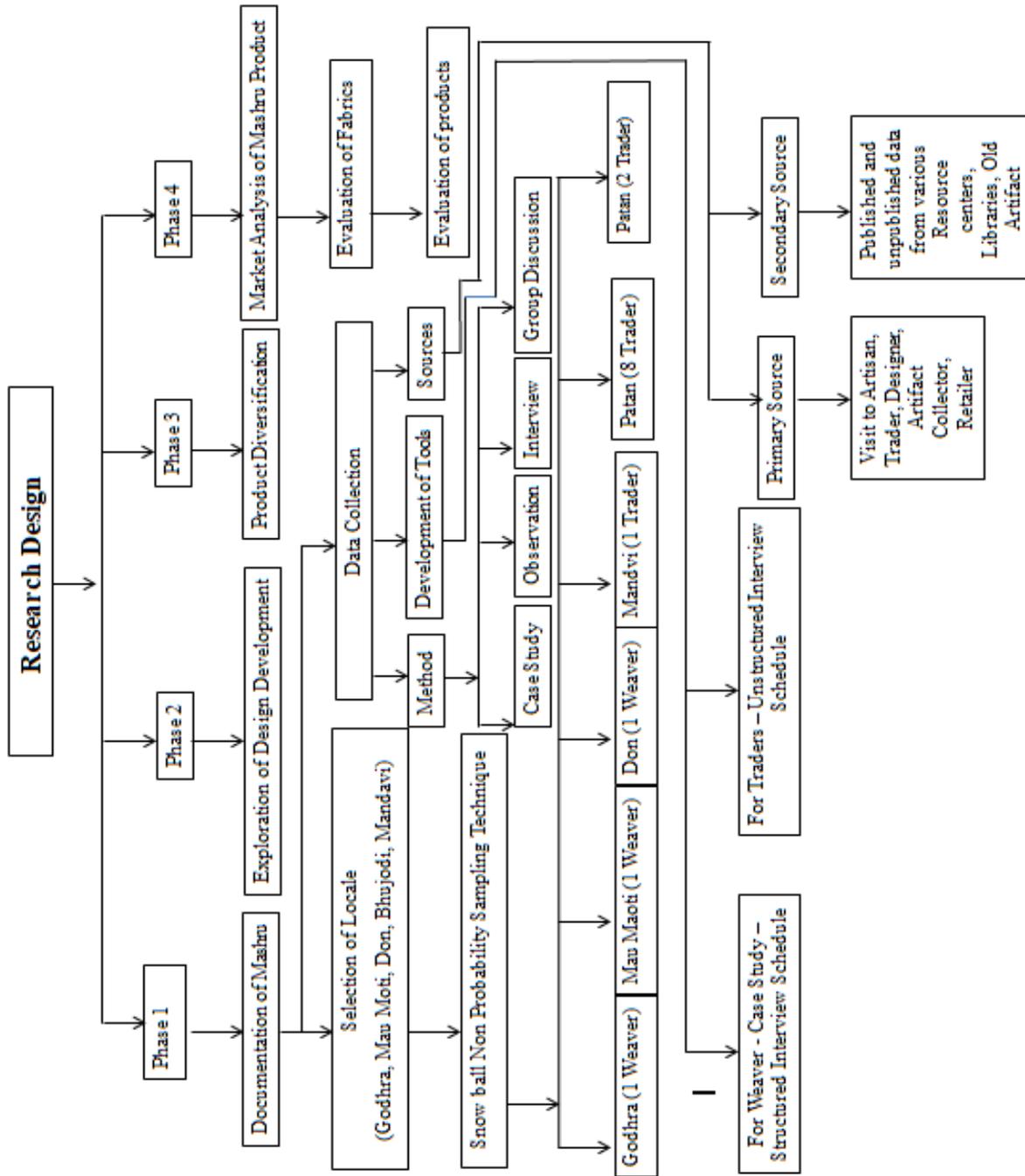
2.5. Review related to sustainability in design

2.6. Review related to design intervention, innovation and product diversification of textile craft

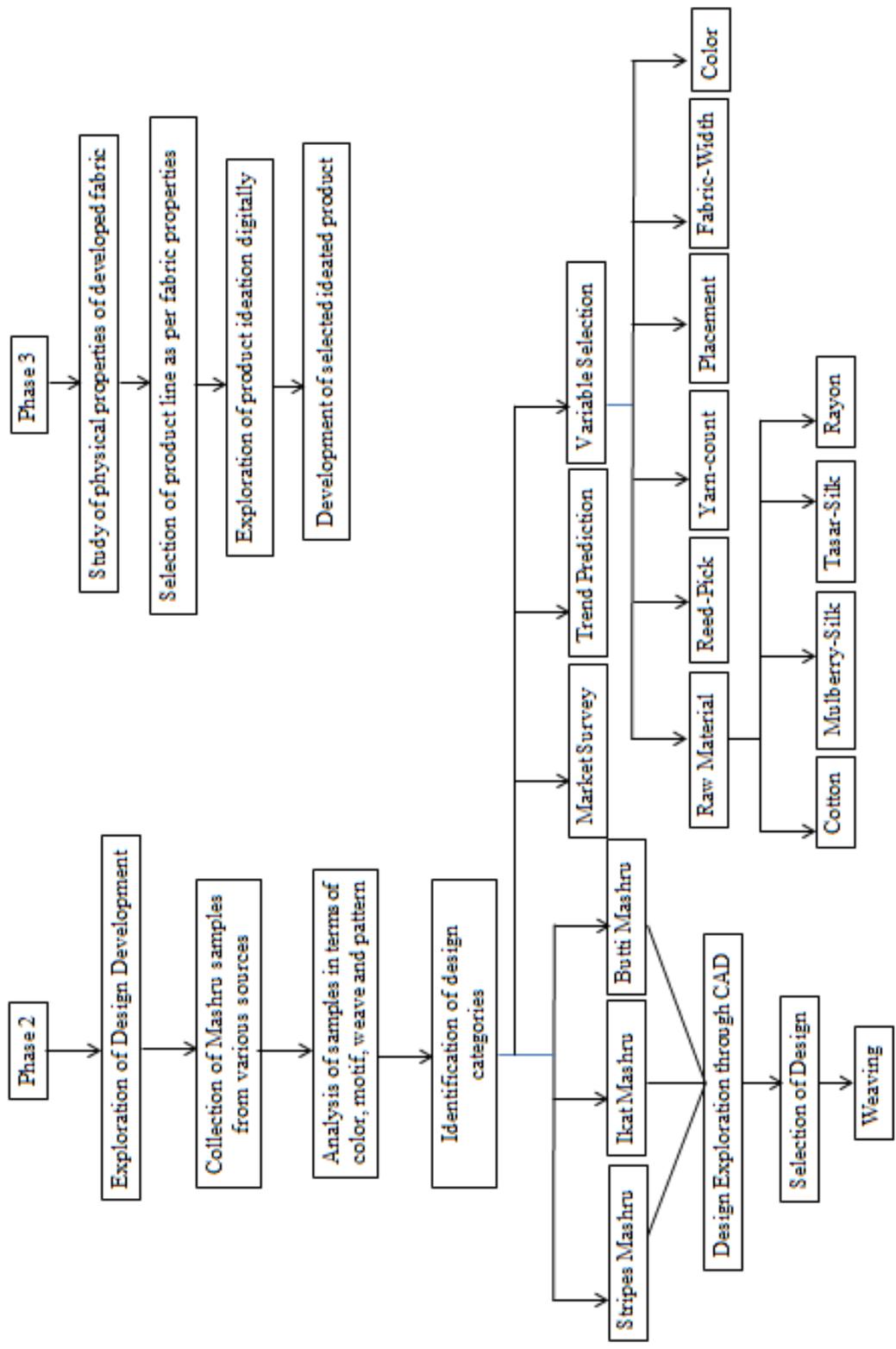
2.7. Review related to role of government policy and its impact on revival of textile craft.

### **3        METHODOLOGY**

This chapter deals with the description of method, procedure and tools adopted to gain data and their analysis needed for the study. The quality and reliability of research findings and conclusion completely rely upon the research design, sampling technique, mode of data collection, data organization and their analysis. The present study had a mixed method approach, which has incorporated descriptive, exploratory as well as experimental study. The various methods of research and tools for collection of data were selected as per the nature of the research, objective and data. The descriptive type of study was used to document Mashru in terms of its origin and history, production process, motif symbolic meaning and visual description. The exploratory study was used to assess the existing situation of the craft in Patan and Bhuj in comparison to earlier done study. Experimental method was used for new design and development. The various tools used for the collection of data were case study, questionnaire, observation, photography and videography. The entire study were planned under three phases. The detailed procedures adopted to undertake the objective of the study were as follows:



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The basic descriptions about the different phases of the study are as follows:

### Phase 1- Documentation of Mashru craft

This phase deals with the Documentation of Mashru craft where researcher started with literature review followed by selection of locale of the craft, selection of respondent to collect data from various sources about the craft. Secondary data was collected from various libraries, resource centers, old artifacts collector and different websites. Primary data was collected through artisan, traders, designers, and NGOs. For primary data; survey was conducted in Patan of Mehsana district, Godhra, Moti Mau, Don and Mandvi of Kutch of Gujarat where both artisan and traders were selected in sample. Here Snowball sampling techniques were adopted for sample selection. For data collection interview schedule, group discussion, observation, photographs and video-graphs tools were used.

### Phase 2- Design and development of new fabric in Mashru

This phase deals with the entire process followed in the design and development process of Mashru samples right from sourcing of existing samples, their analysis, design categorization and its development process. The various collected Mashru samples were analyzed first in context of Yarn type and fiber content, reed - pick, yarn count, layout and weave. Then their major categorization on the basis of technique, yarn content and layout were done. Variables to be played with were selected and then designs were explored and selected for final weaving of samples.

Detail of Design category with raw material					
Warp Material	Raw	Mulberry Silk	Tasar and Mulberry silk	Rayon	Cotton
Category 1 : Stripe Design	:	Stripe Mashru in complete Mulberry Silk warp with cotton weft	Stripe in complete Tasar Silk warp with cotton weft	Stripe in complete Rayon warp with cotton weft	Stripe in complete cotton warp with cotton weft
Category 2 : Ikat	:	Ikat Mashru in	Ikat Mashru in	Ikat Mashru in	Ikat Mashru in

Design	complete Mulberry Silk warp with cotton weft	Mulberry and Tasar Silk warp combination where Tasar lied in Ikat and Mulberry lied in solid colored stripes with cotton weft	complete Rayon warp with cotton weft	complete cotton warp with cotton weft
Category 3 : Buti Design	Buti Mashru in complete Mulberry Silk warp with cotton weft	Buti Mashru in complete Korea Tasar Silk warp with cotton weft	Buti Mashru in complete Rayon warp with cotton weft	Buti Mashru in complete cotton warp with cotton weft

### **Phase 3- Product diversification**

This phase focuses upon the study of physical properties of developed fabrics with respect to its suitability for various end uses. The studied physical properties of developed fabric are as follows:

- ❖ **Style Characteristics**
- ❖ **Utility Characteristics**
- ❖ **Durability Characteristics**
- ❖ **Product Production Characteristics**

### **Phase 4- Analysis of market acceptability of developed fabrics and product**

The fourth phase of the study included the evaluation of market acceptability of developed fabric and product. To accomplish this objective, researcher started with development of Structured Questionnaire keeping in mind all variables. The developed tool comprised of open and close ended statements and also some statements that stimulated multiple responses. Depending upon

the nature of question; researcher developed three/five point Likert scale consisting of multiple statements to express the attributes of the developed fabric/product. Questionnaire consisted of questions concerning to aptness of technique, material placement of motifs/stripe/Ikat, cost efficiency as well as overall aesthetic appeal.

## **4 RESULT AND DISCUSSION**

The present study was carried out on “Innovation in Designing of Mashru Textiles for Product Diversification”. The result and discussion for the same has been discussed under following points:

- 4.1** Documentation of the origin and history of Mashru fabric.
- 4.2** Documentation of the production process of Mashru.
- 4.3** Documentation of the designs and motifs of Mashru with its significance.
- 4.4** Assessment of the existing status of Mashru in Patan and Bhuj.
- 4.5** Design and development new Mashru fabrics.
- 4.6** Analysis of the market acceptability of developed fabrics in terms of yarn, design and aesthetics.
- 4.7** Promotion of Mashru through product diversification of developed fabric.

### **4.1 Documentation of the origin and history of Mashru fabric**

The study for the origin and history of Mashru craft had been mainly done through secondary sources, although primary data has also been collected for this. To understand the origin and history of a craft it is very essential to understand the importance of product and surrounding where it originated and sustained. India has been very popular for variety of handloom and handicraft since long, especially textiles plays a major role in this. Gujarat is major hub for this like Patola of Patan, Saudagiri prints, etc.

‘The word Mashru means “Permitted,” and refers to the prohibition of Moslem ceremonial law of the use of pure silk by men except in war or in the form of narrow borders of dresses. To meet this prohibition, a fatwa (decision of the learned) was obtained to the effect that since pure silk (harir) was prohibited, fabrics consisting silk and some other material was permitted (Mashru)

for men, and hence the invention of this fabric for the men of Islam. The prohibition of pre silk does not apply to women, and therefore Musalman women may in strict conformity with the letter of their law wear the most sumptuous fabrics of silk'. [14]

“Unlike many of the silk textiles discussed above, *Mashru* is still produced in Patan and few villages near Mandavi in Kutch. *Mashru*, as we now know, has a silk warp and a cotton weft and is a warp-faced fabric, or sateen, which means that the face of the cloth is predominantly silk and the reverse is cotton. It was developed to circumvent the Quranic proscription against the use of pure silk and the term means ‘permitted’. The woven patterning’s conformed to Islamic aesthetics and were typically lengthwise stripes that often included small chevrons and ikat”. [5]

‘Mixed fabrics are permitted, whether the mixture be with cotton, bark, hair, or wool, provided that the mixture of these substances be not so small in proportion as to practically entitle the stuff to be called as pure silk fabric. The prohibition is only about pure silk for men; when the mixture is made the rule ceases to have effect. Hence the *Mashru* and many mixed cloths manufactured in India. The reason of the prohibition is undoubtedly akin to the principle of sumptuary laws. A man in a warrior race has no business with effeminate luxuries such as silk or gold; but in battle it was supposed that the silk fabric offered a physical resistance to the edge of the sword, and was therefore allowed’. [14]

More recently power loom *Mashru* has become a staple of caste dress among many rural communities. In Kutch it is used by women from farming and herding groups for blouses and skirts and Rabari men reserve it for ceremonial occasions such as weddings when red *Mashru* turbans, angarkha and ceremonial wraps are worn. Kutch is one of the few places where handloom *Mashru* is still woven. Mahajan weavers, who are Hindus, work on simple pit looms using rayon ‘art silk’ which has replaced mulberry silk. Little of their production is sold in the district-compared to polyester *Mashru* it is expensive although there are regular commissions from non-governmental organizations (NGOs) working in the craft sector who use the fabric for the purses and bags embroidered by local women that are sold as part of income-generation schemes. *Mashru* production also survives in Patan where a majority of the weavers are Muslims. Like the Kutchi weavers they use rayon instead of real silk and they have lately developed a pure cotton *Mashru*-using cotton for both warp and weft. Most of their production is commissioned by cloth merchants in Ahmedabad”. [5]

## 4.2 Documentation of the production process of Mashru.

### Mashru Production Process

Weavers of Patan and Kutch-Bhuj generally use fly shuttle pit loom. Looms are fabricated locally with the help of carpenter and are set with the help of weaver. Fabricated looms are usually modular in nature which are assembled and dismantled as per need of the weaver. The whole weaving process is managed manually except the winding of weft yarn on pirn. In most of the households either outer shades of the houses or the outer room is generally used for this purpose. In Kutch-Bhuj, the whole intricate and lengthy process is managed by the entire weaver's family whereas in Patan each stage of production is managed by different families (community). Almost every member of the house participates in one or the other activity of the production process. In Kutch-Bhuj weaving females are mostly involved in pre and post preparatory process of weaving whereas in Patan females are equally involved in weaving like males. With due patience weaver sits near the loom with legs lying in the pit to weave the fabric. The outcome is result of their endurance, perseverance and communities' participation. The process starts from procurement of warp and weft which ends with the folding of finished yardage. The production of Mashru goes through following stages:

### Procurement of Raw Material

The first stage includes the procurement of raw material. It is one of the most important stages of production process, which determine the quality of fabric to be produced. For Mashru weaving yarns are sourced either in form of cones or skeins to prepare warp. In Patan for warp silk or rayon and for weft cotton is used. Artificial silk (rayon) is procured from Surat, Mulberry silk from Bangalore and cotton from Ahmedabad. In Kutch-Bhuj-Mashru for both warp and weft cotton is used which is procured locally from Bhuj market or from Ahmedabad. Cotton is procured as grey yarn whereas rayon is procured as ready to dye. Silk is procured from Bangalore in dyed state as ready to warp yarn. The detail of various warp and weft yarn is in following table:

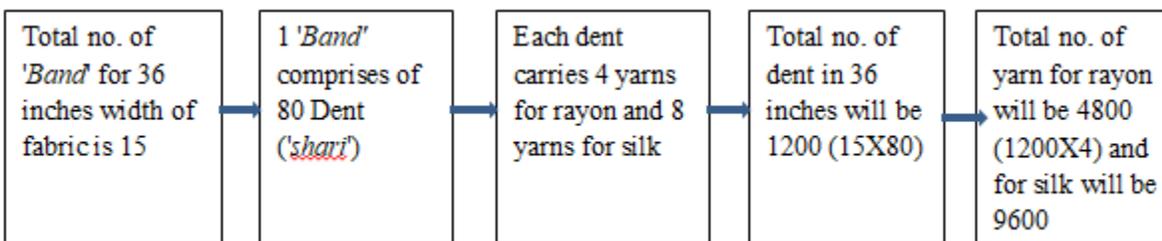
**Table 1: Raw procurement Detail**

Warp & Weft	Type of Yarn	Thread Count	Place of Procurement	Price/Kg
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Warp	Mulberry Silk	3 ply, 60-66 Denier	Banglore	4800Rs/Kg
Warp	Rayon	150 Denier	Surat, Patan	300-400Rs/Kg
Warp	Mercerized Staple Cotton	2/60 Count	Ahmedabad, Bhuj	400-500Rs/Kg
West	Cotton	30s/40s	Ahmedabad, Bhuj, Patan	400-500Rs/Kg

## Warp Preparation

Locally this process is known as *Tani* preparation, which is carried out by *Taniwala*. One Tani comprises of 1200 yarns. The total yarn required for 36 inches width of fabric is 4800 and for 27 inches width of fabric is 3600. Therefore, for 36 inches width fabric 4 Tanis (warps) and for 27 inches width fabric 3 Tanis (warps) are utilized. The conventional length of warping is around 63 meters, out of which approximately 55 meters of fabric are made. In Patan warp is calculated in Band, 36 inches width fabric comprises of 15 Band and each Band has 80 Shari (dent) and each in each dent 4 threads are passed; therefore total number of yarn in 36 inch width of fabric is 4800. Similarly, in 27 inches width of fabric comprises of 12 Band. Thus total number of yarn in 27 inches width of fabric is 3840. For warp preparation yarns run from several spools of a wooden frame (crill) towards the coarser fixed iron heddle shafts in cross order with the insertion of ordinary thread, then to another finer reed and thus wound on a huge reel, over two meters in diameter. Here section warping is done till the expected width is reached.



**Diagram Showing warp calculation for 36 inch width of Mashru fabric in Patan**

## Dyeing

Once the warp is ready, for piece dyed fabric, warp will go immediately to the loom and for yarn dyed fabric it will go for dyeing which is executed by a specific community known as *Rangrez* (local dyers). At present dyeing is done in single color as per the desired number of colors in the design. Earlier, resist warp were commonly used in Mashru. So, for that threads were dyed from the lighter to darker color by partially tying and then dyeing warp again and again as per the number of colors to be achieved.

‘Warp threads were usually dyed in groups of 10-14 together at intervals which vary with the fineness of the wavy pattern ultimately required. In fact the quality and price of superior qualities of Mashru were gauged by the number of undulations that there are in a given length of the wavy line. In order to produce the angular wavy line, the ends of the threads are then arranged unequally. Suppose the threads are taken in systems of nine each. The points of the ends are so disposed that a line traced through them would form an acute angle of 36 degree. Thus when the whole of the warp threads are thus spread out, the wavy *Khanjari* pattern is obtained’. [30] For dying, two types of dyeing is done at Patan; one is Kaccha and other is Paccka. For Kaccha dyeing direct, cold brand and hot brand reactive dyes are used and for paccka naphthol and vat dyes are used.

### **Sizing**

It is the process of starch application on warp yarn. This is also known as Kadkai or Pawat locally. In this process starch is applied over the prepared warp with the help of a brush to impart strength to the yarn, so that it can withstand the tension and friction during upcoming weaving process. Earlier starch was prepared at house but nowadays readymade starch is used which is commonly available in provisional stores in the name of saresh.

### **Shaft Preparation**

Shaft (*Rach*) preparation deals with the representation of design into the heddle of the looms using threads. It is done through *Rajbhara* by passing warp yarn through healds of various shafts as per the order of interlacing, of which the ends are left hanging over. Yarns having same order of interlacing go in same harness. For each new pattern and design new *Rach* is prepared. The cost of *Rach* preparation depends upon number of harness, yarn type and intricacy of design. The cost of *Rach Bharna* in Patan varies from 1200 to 5000 Rupees whereas in Bhuj it goes up to 12000 Rupees.

### **Sandhini**

This process includes the joining of warp yarns with hanging ends of *Rach* as per the weave pattern and color combination throughout the width of fabric to be made. During *Rach* preparation usually white colored yarn is used throughout the width of the reed. So, it needs high level of precision as one wrong join can make the entire pattern wrong. So, this stage also turns to be very important to achieve flawless predetermined warp weave pattern and color repeat.

### **Shuttle Preparation**

The weft consists of plain cotton yarn, which is dyed and then transferred on bobbins for the shuttle. The count of weft yarn varies from 40s -60s. Yarns are transferred over bobbin using *Charkha*. After this bobbins are merged in water for some time to increase its strength and then fixed in pirn for weft insertion process.

## **Weaving**

After the installation of *Rach* (harness) over loom and its *Sandhini* (joining) with warp yarn on loom, it is ready for weaving. Fabric is woven using a traditional pit loom. This includes shade preparation of warp to allow weft to pass through it. For shading harness needs to be lifted in certain order. Harness that needs to be lifted at same time are attached with a common cord and is connected to pedal attached to the lower part of the loom. When pedals are pressed as per the treadle order, harness is moved up or down to create the shed for weft insertion. Weft yarns run to and fro along the width of fabric by pulling. The inserted weft is beaten against the woven fabric to be its part. This continuous process leads to the weaving of fabric.

## **Kundi**

After the completion of weaving, the fabric is washed, cleaned and folded. While the fabric is still moist, its upper surface is glazed by Kundiwala. For this back face of the fabric is beaten with wooden hammers which allows the warp threads to appear uniformly on the right side of the cloth. Then is calendared with Wheat flour paste and again beaten and further pressed to ready it for sale.

‘In the fabrics known as *Sangi*, *Gulbadan*, *Mashru*, and thick *Kamkhwab*, the woven *Than* or piece is washed, cleaned, and folded, and its uppermost fold glazed before it is put away for sale or forwarded in compliance with a customer’s order. The work is performed by a *Kundigar*. For an ordinary *than* he prepares a mixture of the juice of 10 lemons, a quarter of a *Ser* of sugar and water sufficient to immerse the *than* to a depth of two inches. If the fabric contains silver *Kalabatun*, *aritha* or *ritha* nuts (soap-nuts) are submitted for the lemon. This adds to the brilliancy of the silk and is considered particularly necessary to set off fast colors. The *Kundugar*, after washing the *than* as above, presses and folds it. He lays the fabric on a block of wood called the *Kunda* (from which the *Kundigar* takes his name), which serves in place of a stool. The upper surface of the block is perfectly smooth and level. He then takes two *pitnis*, one in each hand and commences to rub the fabric in the same way as a *dhobi* (washerman) uses his iron. The *pitni* is a wooden implement, consisting of a flat blade joined to a handle somewhat like a paddle. In this way any *kalabatun* or other patterns that may happen to stand out of the surface of the fabrics are smoothed down. A further process of rubbing with *Mohra* is followed by the folding of the cloth. The topmost fold is well beaten with a mallet, smoothed once again glazed, and then *than* is ready’. [2]

### **4.3 Documentation of the designs and motifs of Mashru with its significance.**

In this section researcher had narrated Mashru's construction detail, aesthetics, visual identity, functional simplicity, user's connectivity, hidden emotions and its bold colors which enfold joy, fun, surreptitious desire to refill around bright colors. At times its color and pattern drag us to the lane of childhood while other time it drags to embarks a strong, bold and beautiful modern identity. Permutations and combinations of colors give fresh, dominant, lively and energetic appeal.

Mashru is a perennial, persistent creation in form of stripe and colors. It shows the utmost harmony of color in strips occasionally amplified with bold-vibrant ikats and geometric decorative small buttis.

**Design Description:** On the basis of visual analysis of secondary sources, mashru fabric primarily comprises of satin weave along with twill variations like broken twill and reverse twill, rib, supplementary warp and weft as secondary weave. Because of satin weave and silk in warp resultant fabric is found very lustrous. The base of the fabric is prepared by cotton weft. Though satin has been used in many other brocade varieties, the use of pure, vibrant and undiluted stripes in satin gives them characteristics feature and make them to stand out as a unique handloom craft. Stripes had been customarily found either in multicolor band placed next to each other or as single colored base separated by thin and thick lines. Along with stripes ikat patterns, small floral and geometrical are also accompanied in satin base. Supplementary warp and weft motifs had been usually found in coarser yarn count. Visually the representation of designs has been found from simple to complex patterns.

**Color Description:** The most commonly observed color as per secondary sources in warp has been red and its variation. Others are black, mustard and green variations. In weft usually cream, almond, off white, light yellow and ochre has been found.

**Weave:** Mashru mainly comprises of satin weave. Although satin does major constitute to the fabric structure, it also encompasses other weaves like twill, rib, supplementary warp or weft. Other weaves are mainly used for decorative purpose. The base fabric comprises of satin and decorative elements like *Kakan* or *Kataria* comprises of warp rib, *butties* comprises of extra warp or extra weft or rib in patterned structure and Khajuri comprises of twill usually in five or seven shaft. In Patan eight end satin is used whereas in Bhuj seven end satin is used. The

important feature of satin in this fabric is that satin used resembles twill because of mauve number 1. Usually in any fabric when satin is used then mauve number more than one is taken as it covers the spot created by weft in binding warp float to create uniform solid colour of warp throughout the surface.

**Design and placement:** Fundamental patterns of Mashru are stripes in warps, which are developed into a range of variation by combining them with supplementary warps or Ikats. Its Ikats are actually arrowhead patterns made by shifting warps when laying them out on the loom. Though satin has been used in many other brocade varieties, the use of pure, vibrant and undiluted stripes in satin gives them characteristics feature and make them to stand out as a unique handloom craft. Stripes had been customarily found either in multi-color band placed next to each other or as single color dominant base separated by thin and thick lines. Along with stripes, ikat patterns, small floral and geometrical supplementary yarn motif has also been accompanied in satin base. Supplementary warp and weft motifs had been usually found in coarser yarn count compared to base yarn. Overall the representation of designs has been found from simple to complex patterns.

After going through visual and technical analysis; Mashru description from researcher' understanding is that Mashru reflects audacious use of color to the highest intensity giving trinket like gleam out of multicolored stripes juxtaposed next to each other. All colors are rich, vibrant, illustrious and distinguished. Usually found in abundance of red with yellow, black green colors. Strong linear treatment of colors in broad bands intensifies tones of the color. The instantaneous visual color contrast is thus immediate and unchecked. The spatial arrangement of colors is wonderful to give brilliance and lustrous appeal yet pleasant in nature yields it a balanced-joyous-warmth feel. The whole fabric surface seems to have collected colors in such a way that in bare and barren land one won't feel its absence in the surrounding. Some of the pieces found with supplementary weft motifs give it a royal touch; it is further intensified with golden yarns. The stylized floral and geometrical butties are usually arranged in brick repeat leaves a mark of uniformity in entire space. The variety of color bands with calibrated spread of butties on the fabric leads the eye to form distinct visual layer whereas the samples intensely patterned with thin and thick colour band makes the observer to feel conflicting retinal images. Fabric with ikat patterning gives a blend of harmony and contrast. Overall, in Mashru one can

say that colors have dominated the fabric rather than pattern. Gujarat is a land of layers of culture which is absolutely reflected through Mashru. In this context Mashru can be described as the symphony of double-niche associated with patola and Ashawali because of its resemblance to them. It resembles to Ashawali for its motifs, its spatial arrangement and technique and it resembles to Patola for ikat; although actual element vary considerably. Structural and visual analysis of the collected samples shows that no design was exclusive to any weaver/workshop as a number of pieces of several artisan share common features. In fact today also one can find same piece being woven at several workshops. Moreover, artisan relies much upon simple historical patterns only. Existing as well as established pattern-decoration-tradition repertoires needs to be widened to satisfy the market demands.

#### **4.4 Assessment of the existing status of Mashru in Patan and Bhuj.**

Although the condition of Mashru in both Patan and Bhuj is not very sound, but looking into the recent history of Bhuj, conditions seems to be improving. It is due to the involvement of several NGOs located in the vicinity of Bhuj who are constantly working to revive Mashru over there. Around five years back there were hardly 5 artisans but at present the numbers has increased over ten. In contrast to this the numbers of weavers in Patan are still depleting. The major reason behind this is lack of technological up gradation as well as the rigidity of the artisan to move with the flow of design need as well as inability of the weaver to explore. In terms of exposure also Bhuj is getting better exposure and promotion compared to Patan. Patan is mainly known for Patola, somehow Mashru weavers are not able to build that reputation and connect for Mashru. It has always been looked as secondary textile for Patan.

#### **4.5 Design and development of new Mashru fabric:**

**New design development:** After understanding Mashru designs, loom and related accessories has been done to understand the scope, possibility and feasibility of available equipment in context of fabric development, then designs were conceptualized on the basis of analysis and finally it were developed in weaver's workshop.

During design development consideration was taken towards keeping the visual characteristics of the craft intact. Here investigator has played with variables like pattern and placement, motif,

ikat, warp material, reed-pick and yarn count. Looking into the infrastructure of the loom it was found that most of the looms were equipped with 8 shafts and few were found with 16 or 14 shafts. One artisan's loom in Bhuj was found with 21 shafts but he occasionally used this. Artisans were not used to of using shaft more than eight. Fourteen and 21 shafts were mainly used for alternate butti design known as Danedar. Other complex motifs are not in practice now. Here the challenge was to come out with new design looking into the limitation of shaft, skill of the weaver, shaft maker as well as artisan preparedness to work upon it. Looking upon several conceptual possibilities with permutation and combination following pattern was finalized in four categories where each category had 3 sub categories:

**Table 2: Design categorization**

Category 1 (Mulberry Silk X Cotton)	Designed Fabrics	Variety
	Design A	Striped Mashru
	Design B	Ikat Mashru
	Design c	Butti Mashru
Category: II (Tasar silk/Tasar + Mulberry X Cotton)	Design A	Striped Mashru
	Design B	Ikat Mashru
	Design C	Butti Mashru
Category: III (Rayon X Cotton)	Design A	Striped Mashru
	Design B	Ikat Mashru
	Design C	Butti Mashru
Category: IV (Cotton X Cotton)	Design A	Striped Mashru
	Design B	Ikat Mashru
	Design C	Butti Mashru



**Category I: Design A: Stripe Mashru  
in silk warp**

**Category II: Design A: Stripe Mashru  
in Rayon warp**

Above fabric has been developed by now, and rest of the fabric are in the process of development.

#### **4 CONCLUSION**

Through above study it is found that Mashru is an important traditional textile which has huge potential to be explored. Its information needs to be disseminated and its practice should be taken forward. Being handloom and handicraft the second employment generating sector cannot be neglected. Along with it the cultural and traditional connotation attached to it makes it essential to be carried forward. Design innovation can be used as an important element to boost up a craft. Mashru being a languishing craft needed immediate attention. For innovation it's very essential to look into infrastructure and its micro environment. The willingness of the artisan is very important to work in handloom sector. The responsibility lies in hands of both artisan as well as designer to work for the craft. The journey of the study is all about development of design, making artisan to work upon it, modifying plan to get them done on the basis of preliminary information. Concept development is a small part of entire study but to get it done; reviving extinct practices, convincing the artisan to work for it was a major task of the study. For the

development of craft both the designer as well as artisan needs to approach each other in order to realize a concept into concrete reality. After development of design it is equally important to send them at appropriate platform and consumer to sustain a craft.

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